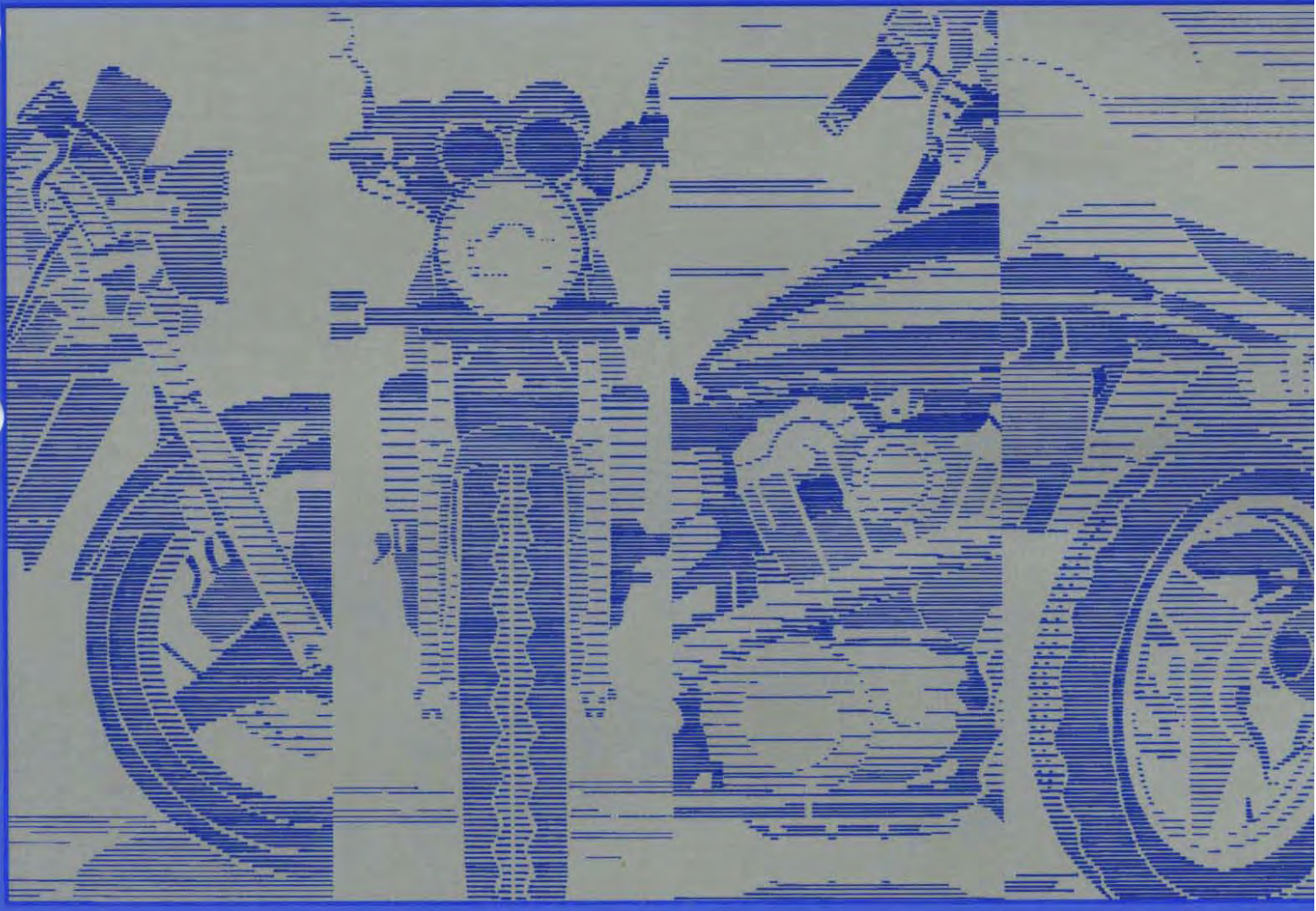
HONDA

SERVICE MANUAL



91-93,95-99

CB750 NIGHTHAWK®

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Important Safety Notice

⚠WARNING **Indicates a strong possibility of severe personal injury or death if instructions are not followed.**

CAUTION: Indicates a possibility of equipment damage if instructions are not followed.

NOTE: Gives helpful information.

Detailed descriptions of standard workshop procedures, safety principles and service operations are not included. It is important to note that this manual contains *some* warnings and cautions against some specific service methods which could cause **PERSONAL INJURY** to service personnel or could damage a vehicle or render it unsafe. Please understand that those warnings could not cover all conceivable ways in which service, whether or not recommended by Honda, might be done or of the possibly hazardous consequences of each conceivable way, nor could Honda investigate all such ways. Anyone using service procedures or tools, whether or not recommended by Honda, *must satisfy himself thoroughly* that neither personal safety nor vehicle safety will be jeopardized by the service methods or tools selected.

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Introduction

This service manual describes the service procedures for the CB750.

This Model Specific Manual includes every service procedure that is of a specific nature to this particular model. Basic service procedures that are common to other Honda Motorcycle/Motor Scooter/ATVs are covered in the Common Service Manual. This Model Specific Service Manual should be used together with the Common Service Manual in order to provide complete service information on all aspects of this motorcycle.

CODE	AREA (TYPE)	CODE	AREA (TYPE)
A	America	CM	Canada
AC	California		

Follow the Maintenance Schedule (Section 3) recommendations to ensure that the vehicle is in peak operating condition and the emission levels are within the standards set by the U.S. Environmental Protection Ageney and the California Air Resources Board. Performing the first scheduled maintenance is very important. It compensates for the initial wear that occurs during the break-in period.

Sections 1 and 3 apply to the whole motorcycle. Section 2 illustrates procedures for removal/installation of components that may be required to perform service described in the following sections.
Sections 4 through 17 describe parts of the motorcycle, grouped according to location.

Find the section you want on this page, then turn to the table of contents on the first page of the section.

Most sections describe the service procedure through a system illustration. Refer to the next page for detail on how to use this manual.

If you don't know the source of the trouble, go to section 18 Troubleshooting.

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HONDA MOTOR CO., LTD.
Service Publications Office

Contents

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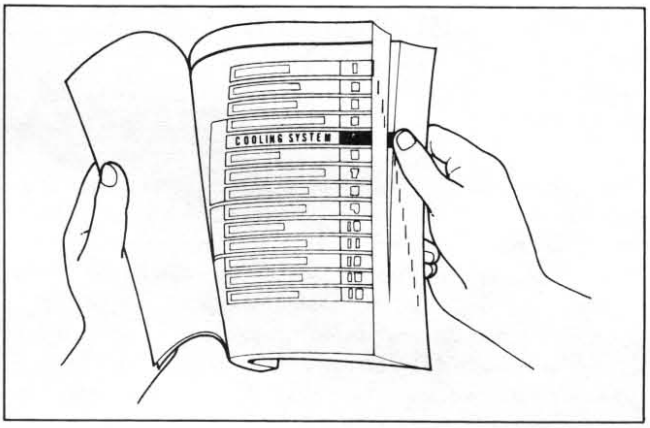
How to Use This Manual

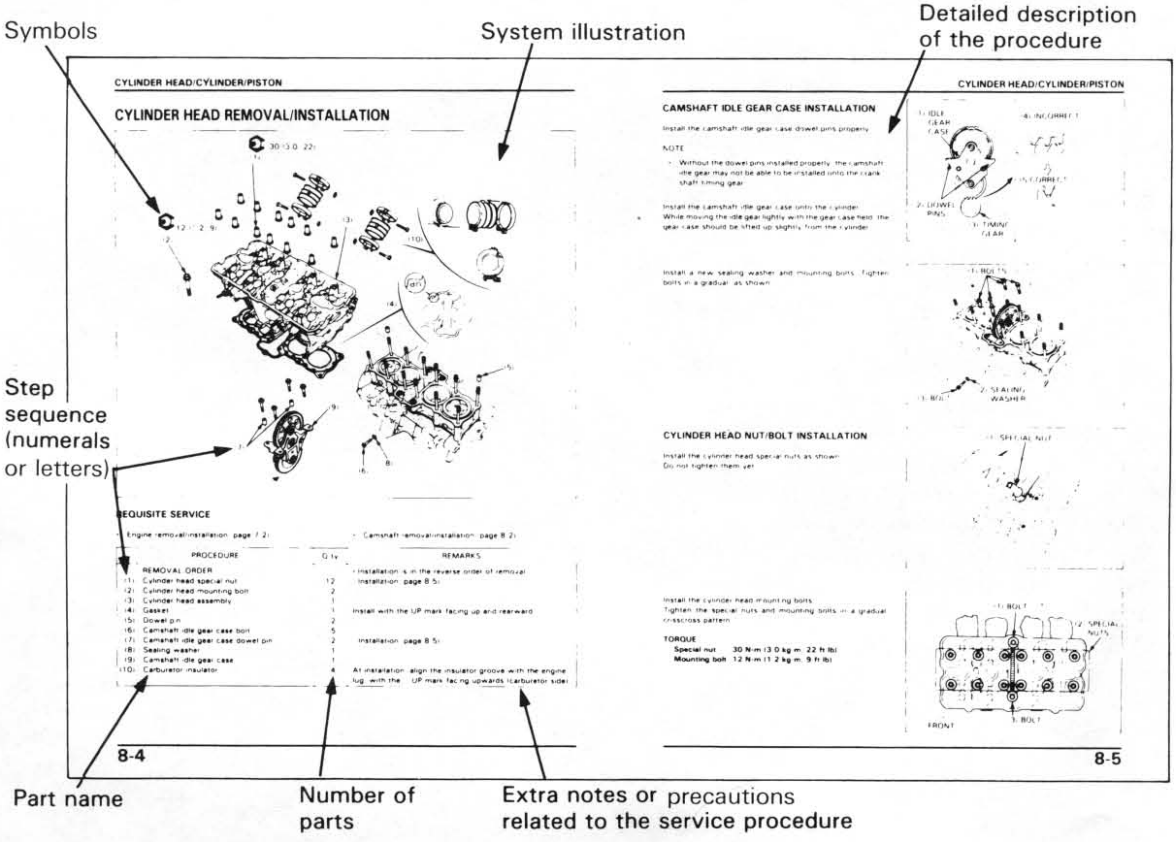
Finding The Information You Need



- This manual is divided into sections which cover each of the major components of the motorcycle.
  To quickly find the section you are interested in, the first page of each section is marked with a black tab that lines up with one of the thumb index tabs before this page.
  The first page of each section lists the table of contents within the section.
  Read the service information and troubleshooting related to the section before you begin working.
- An index of the entire book is provided in the last chapter to directly locate the information you need.

Understanding The Instructions

- The removal and installation of parts are for the most part illustrated by large and clear illustrations that should provide the reader with visual aid in understanding the major point for servicing.
- The system illustrations are augmented by callouts whose numbers or letters indicate the order in which the parts should be removed or installed.
- The sequence of steps represented numerically are differentiated from the ones represented alphabetically to notify the reader that they must perform these steps seperately.
  For example, if the steps prior and up to camshaft removal are performed with the engine installed, but the subsequent steps like cylinder head removal require engine removal, the callouts are grouped in numerical and alphabetical orders.
- The illustrations may contain symbols to indicate necessary service procedures and precautions that need to be taken. Refer to the next page for the meaning of each symbol.
- Also in the illustration is a chart that lists information such as the order in which the part is removed/installed, the name of the part, and some extra notes that may be needed.
- Step by step instructions are provided to supplement the illustrations when detailed explanation of the procedure is necessary or illustrations alone would not suffice.
- Service procedures required before or after the procedure described on that particular page, or inspection/adjustment procedures required following the installation of parts, are described under the title Requisite Service.
- Standard workshop procedures and knowledge covered in the Common Service Manual are abbreviated in this manual.



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Symbols

The symbols used throughout this manual show specific service procedures. If supplementary information is required pertaining to these symbols, it would be explained specifically in the text without the use of the symbols.

	Replace the part(s) with new one(s) before assembly.
	Use special tool.
	Use optional tool. Use the same procedure you use to order parts.
 10 (1.0, 7.2)	Torque specification 10 N·m (1.0 kg-m, 7.2 ft-lb).
	Use recommended engine oil, unless otherwise specified.
	Use molybdenum oil solution (mixture of engine oil and molybdenum grease in a ratio of 1 : 1).
	Use multi-purpose grease (Lithium based multi-purpose grease NLGI #2 or equivalent).
	Use molybdenum disulfide grease (containing more than 3% molybdenum disulfide, NLGI #2 or equivalent). Example: Molykote® BR-2 plus manufactured by Dow Corning, U.S.A. Multi-purpose M-2 manufactured by Mitsubishi Oil Japan
	Use molybdenum disulfide paste (containing more than 40% molybdenum disulfide, NLGI #2 or equivalent). Example: Molykote® G-n Paste manufactured by Dow Corning, U.S.A. Honda Moly 60 (U.S.A. only) Rocol ASP manufactured by Rocol Limited, U.K. Rocol Paste manufactured by Sumico Lubricant, Japan
	Use silicone grease.
	Apply a locking agent. Use a middle strength locking agent unless otherwise specified.
	Apply sealant.
	Use brake fluid, DOT 3 or DOT 4. Use the recommended brake fluid, unless otherwise specified.
	Use Fork or Suspension Fluid.

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1. General Information

General Safety

Carbon Monoxide

If the engine must be running to do some work, make sure the area is well ventilated. Never run the engine in an enclosed area.

⚠WARNING

- **The exhaust contains poisonous carbon monoxide gas that can cause loss of consciousness and may laed to death.**

Run the engine in an open area or with an exhaust evacuation system in an enclosed area.

Gasoline

Work in a well ventilated area. Keep cigarettes, flames or sparks away from the work area or where gasoline is stored.

⚠WARNING

- **Gasoline is extremely flammable and is explosive under certain conditions. KEEP OUT OF REACH OF CHILDREN.**

Hot Components

⚠WARNING

- **Engine and exhaust system parts become very hot and remain hot for some time after the engine is run. Wear insulated gloves or wait until the engine and exhaust system have cooled before handling these parts.**

Used Engine/Transmission Oil

⚠WARNING

- **Used engine oil (or transmission oil in two-strokes) may cause skin cancer if repeatedly left in contact with the skin for prolonged periods. Althogh this is unlikely unless you handle used oil on a daily basis, it is still advisable to throughly wash your hands with soap and water as soon as possible after handling used oil. KEEP OUT OF REACH OF CHILDREN.**

Brake Dust

Never use an air hose or dry brush to clean brake assemblies. Use an OSHA-approved vacuum cleaner or alternate method approved by OSHA, designed to minimize the hazard caused by airborne asbestos fibers.

⚠WARNING

- **Inhaled asbestos fibers have been found to cause respiratory disease and cancer.**

Brake Fluid

CAUTION

- **Spilling fluid on painted, plastic or rubber parts will damage them. Place a clean shop towel over these parts whenever the system is serviced. KEEP OUT OF REACH OF CHILDREN.**

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Coolant

Under some conditions, the ethylene glycol in engine coolant is combustible and its flame is not visible. If the ethylene glycol does ignite, you will not see any flame, but you can be burned.

⚠ WARNING

- **Avoid spilling engine coolant on the exhaust system or engine parts. They may be hot enough to cause the coolant to ignite and burn without a visible flame.**
- **Coolant (ethylene glycol) can cause some skin irritation and is poisonous if swallowed. KEEP OUT OF REACH OF CHILDREN.**
- **Do not remove the radiator cap when the engine is hot. The coolant is under pressure and could scald you.**
- **Keep hands and clothing away from the cooling fan, as it starts automatically.**

If it contacts your skin, wash the affected areas immediately with soap and water. If it contacts your eyes, flush them thoroughly with fresh water and get immediate medical attention. If it is swallowed, the victim must be forced to vomit then rinse mouth and throat with fresh water before obtaining medical attention. Because of these dangers, always store coolant in a safe place, away from the reach of children.

Nitrogen Pressure

For shock absorbers with a gas-filled reservoir:

⚠ WARNING

- **Use only nitrogen to pressurize the shock absorber. The use of an unstable gas can cause a fire or explosion resulting in serious injury.**
- **The shock absorber contains nitrogen under high pressure. Allowing fire or heat near the shock absorber could lead to an explosion that could result in serious injury.**
- **Failure to release the pressure from a shock absorber before disposing of it may lead to a possible explosion and serious injury if it is heated or pierced.**

To prevent the possibility of an explosion, release the nitrogen by pressing the valve core. Then remove the valve stem from the shock absorber reservoir. Dispose of the oil in a manner acceptable to the Environmental Protection Agency (EPA).

Before disposal of the shock absorber, release the nitrogen by pressing the valve core. Then remove the valve stem from the shock absorber.

Battery Hydrogen Gas & Electrolyte

⚠ WARNING

- **The battery gives off explosive gases; keep sparks, flames and cigarettes away. Provide adequate ventilation when charging.**
- **The battery contains sulfuric acid (electrolyte). Contact with skin or eyes may cause severe burns. Wear protective clothing and a face shield.**
  - **— If electrolyte gets on your skin, flush with water.**
  - **— If electrolyte gets in your eyes, flush with water for at least 15 minutes and call a physician.**
- **Electrolyte is poisonous.**
  - **— If swallowed, drink large quantities of water or milk and follow with milk of magnesia or vegetable oil and call a physician. KEEP OUT OF REACH OF CHILDTEN.**

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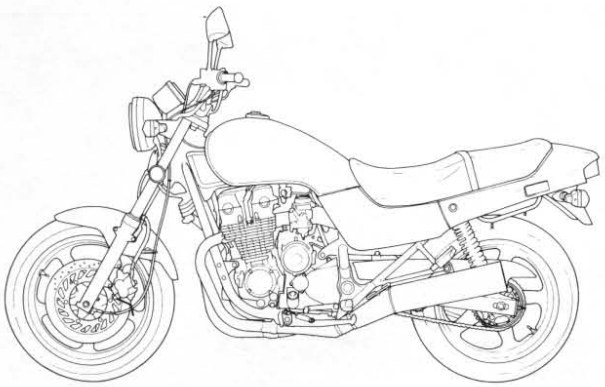
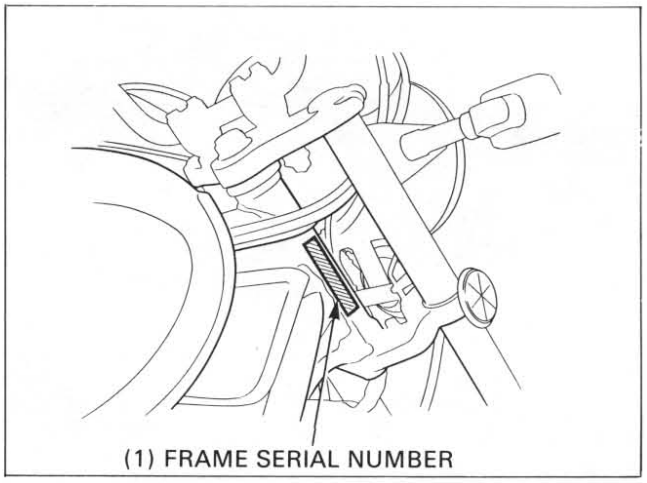
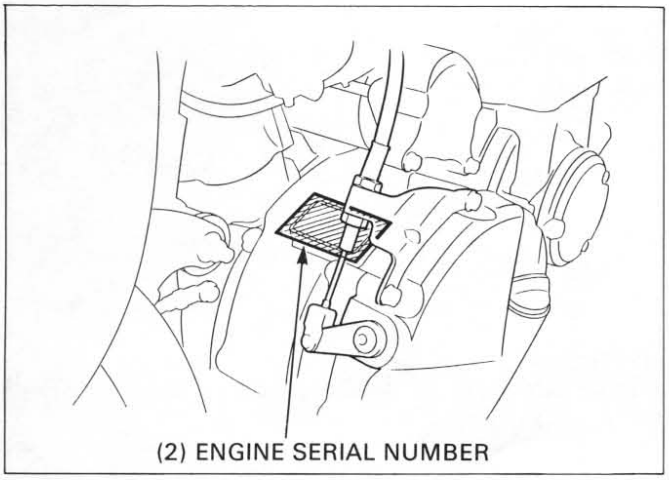
Model Identification

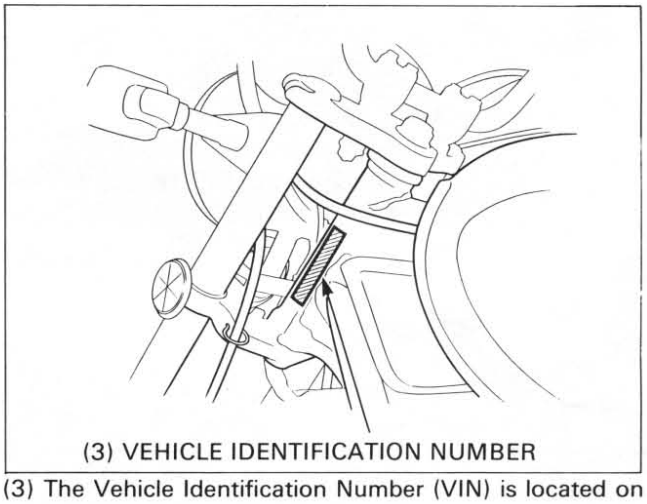




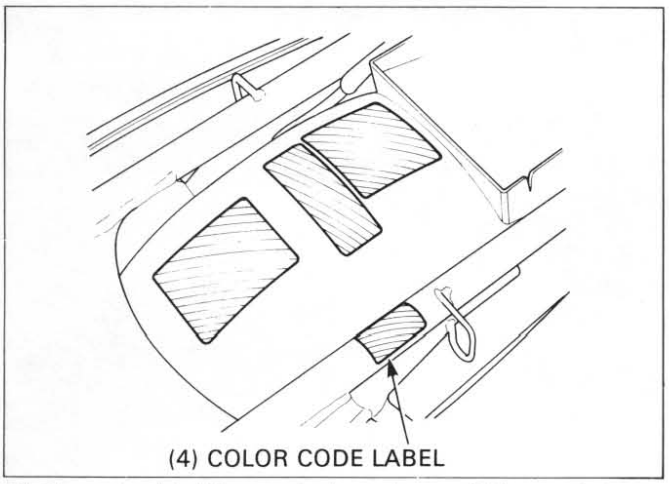
(1) The frame serial number is stamped on the right side of the steering head.



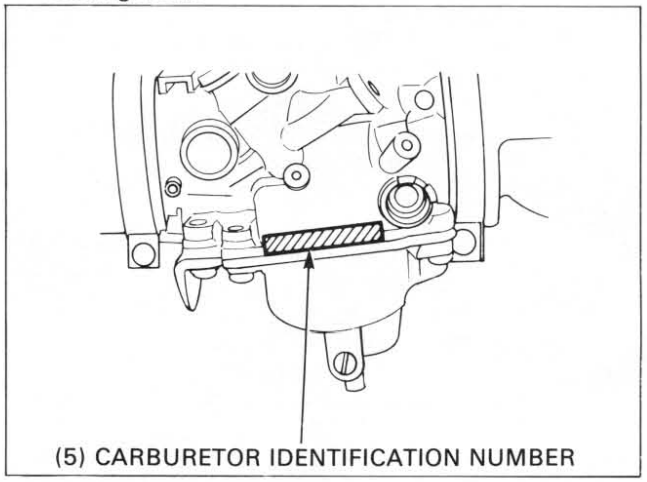
(2) The engine serial number is stamped on the upper right of the crankcase.



(3) The Vehicle Identification Number (VIN) is located on the Safety Certification Label on the left side of the steering head.



(4) The color label is attached as shown. When ordering color-coded parts, always specify the designated color code.



(5) The carburetor identification number is stamped on the left side of the carburetor body.

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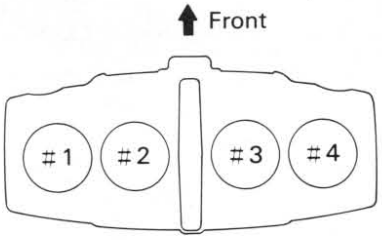
Specifications

General

	Item	Specifications
Dimensions	Overall length	2,185 mm (86.0 in)
	Overall width	800 mm (31.5 in)
	Overall height	1,135 mm (44.7 in)
	Wheel base	1,505 mm (59.3 in)
	Seat height	780 mm (30.7 in)
	Footpeg height	320 mm (12.6 in)
	Ground clearance	140 mm (5.5 in)
	Dry weight 〈AC model〉	210 kg (463 lbs) 〈212 kg (467 lbs)〉
	Curb weight 〈AC model〉	226 kg (498 lbs) 〈228 kg (503 lbs)〉
	Maximum weight capacity 〈CM model〉	161 kg (355 lbs) 〈165 kg (364 lbs)〉
Frame	Frame type	Double cradle
	Front suspension	Telescopic fork
	Front wheel travel	140 mm (5.5 in)
	Rear suspension	Swingarm
	Rear wheel travel	110 mm (4.3 in)
	Rear damper	Double effect type
	Front tire size	110/80-18 58H
	Rear tire size	140/70-17 66H
	Tire brand (Bridgestone) Front/Rear	—
	Tire brand (Dunlop) Front/Rear	K505F/K505
	Tire brand (Yokohama) Front/Rear	—
	Tire brand (IRC) Front/Rear	—
	Front brake	Hydraulic brake
	Rear brake	Internal expanding shoe
	Caster angle	29°
	Trail length	117 mm (4.6 in)
	Fuel tank capacity	18.0 lit. (4.76 US gal, 3.96 Imp gal)
	Fuel tank reserve capacity	3.0 lit. (0.79 US gal, 0.66 Imp gal)
Engine	Bore and stroke	67.0×53.0 mm (2.6×2.1 in)
	Displacement	747 cc (45.6 cu-in)
	Compression ratio	9.3: 1
	Valve train	Silent multi link chain drive and DOHC with rocker arm
	Intake valve opens (at 1mm lift)	0° BTDC
	Intake valve closes (at 1mm lift)	35° ABDC
	Exhaust valve opens (at 1mm lift)	30° BBDC
	Exhaust valve closes (at 1mm lift)	−5° ATDC
	Lubrication system	Forced pressure and wet sump
	Oil pump type	Trochoid
	Cooling system	Air cooled
	Air filtration	Paper filter
	Crankshaft type	Unit-type
	Engine weight 〈AC model〉	81.3 kg (179.2 lbs) 〈82 kg (180.7 lbs)〉
	Firing order	1-2-4-3
	Cylinder arrangement	In line four
	Cylinder number	

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General (Cont'd)

Item		Specifications
Carburetor	Carburetor type	Constant vacuum 4 carburetors
	Throttle bore	34 mm (1.3 in)
Drive Train	Clutch system	Multi-plate, wet
	Clutch operation system	Mechanical type
	Transmission	5-speed
	Primary reduction	1.780(73/41)
	Secondary reduction	——
	Third reduction	——
	Final reduction	2.533(38/15)
	Gear ratio 1st	3.000(42/14)
	Gear ratio 2nd	2.056(37/18)
	Gear ratio 3rd	1.545(34/22)
	Gear ratio 4th	1.240(31/25)
	Gear ratio 5th	1.074(29/27)
	Gear ratio 6th	——
	Gear ratio reverse	——
	Gearshift pattern	Left foot operated, return system, 1-N-2-3-4-5
Electrical	Ignition system	Full transistor ignition
	Starting system	Starter motor
	Charging system	Triple phase output alternator
	Regulator/rectifier type	Field control/triple phase full-wave rectification
	Lighting system	Battery
	AC regulator type	——

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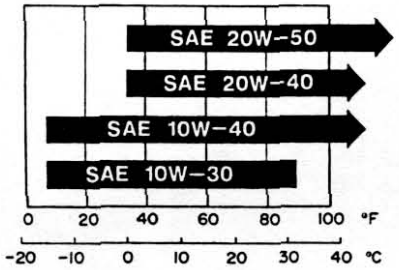
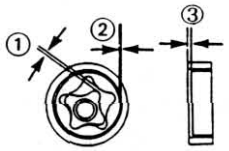
Lubrication

Unit: mm(in)

Item	Standard	Service Limit
Engine oil capacity at draining	2.7 lit. (2.8 US qt, 2.4 Imp qt)	—
at disassembly	3.6 lit. (3.8 US qt, 3.2 Imp qt)	—
at oil filter change	2.9 lit. (3.0 US qt, 2.6 Imp qt)	—
Recommended engine oil	Use Honda 4-stroke Oil or equivalent API Service Classification: SF or SG Viscosity: SAE 10W-40 Other viscosities shown in the chart may be used when the average temperature in your riding area is within the indicated range.	
Oil pressure (80°C/176°F)	630 kPa (6.3 kg/cm², 90 psi) at 6,000 rpm	
Oil pump rotor tip clearance ①	0.15 (0.006)	0.20 (0.008)
body clearance ②	0.15–0.22 (0.006–0.009)	0.35 (0.014)
end clearance ③	0.02–0.07 (0.001–0.003)	0.10 (0.004)

OIL VISCOSITIES





Fuel System

Carburetor identification number	(A model)	VE66B	—
	(AC model)	VE77C	—
	(CM model)	VE66C	—
Main jet	(A model)	#112	—
	(AC model)	#110	—
	(CM model)	#110	—
	(High altitude)	—	—
	(2, 3)	—	—
	(1, 4)	—	—
	(Front)	—	—
	(Rear)	—	—
Slow jet		#35	—
Jet needle clip position		—	—
Pilot screw initial opening	(A model)	See page 5-12	—
	(AC model)	See page 5-12	—
	(CM model)	2–3/8 turns out	—
Pilot screw high altitude adjustment	(A model)	See page 5-13	—
	(AC model)	See page 5-13	—
Pilot screw final opening	(A model)	See page 5-12	—
	(AC model)	See page 5-12	—
	(CM model)	1/2 turn out	—
Air screw initial opening		—	—
Air screw high altitude adjustment		—	—
Float level		18.5 (0.73)	—
Carburetor vacuum difference		Within 30 mmHg (1.2 inHg)	—
Base carburetor (For carburetor synchronization)		No.2 carburetor	—
Idle speed		1,000±100 rpm	—
Trottle grip free play		2–6 (0.08–0.24)	—
Accelerator pump clearance		—	—
Secondary air supply system		PAIR check valves and PAIR control valve	—
PAIR control valve vacuum pressure		270 mmHg (10.63 inHg)	—

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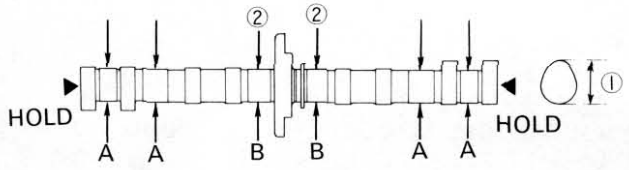
Cylinder Head

Unit:mm(in)

Item	Standard	Service Limit
Cylinder compression	981-1373kPa(142-199psi,10-14kg/cm²) 250/rpm	——
Cylinder compression synchronization difference	——	392kPa(57psi, 4kg/cm²)
Valve clearance IN	——	——
EX	——	——
Cylinder head warpage	——	0.10 (0.004)
Cam lobe height (1) IN	32.252-32.412(1.2697-1.2760)	32.17 (1.266)
IN(California model)	32.252-32.412(1.2697-1.2760)	32.17 (1.266)
EX	32.136-32.296(1.2651-1.2714)	32.05 (0.907)
EX(California model)	32.136-32.296(1.2651-1.2714)	32.05 (0.907)
Camshaft runout (2)	——	0.10 (0.004)
Camshaft oil clearance A	0.020-0.062(0.0007-0.0024)	0.09 (0.003)
B	0.055-0.097(0.0021-0.0038)	0.12 (0.004)



Camshaft journal O.D. (A)	25.959-25.980 (1.0220-1.0228)	——
(B)	25.929-25.950 (1.0208-1.0216)	——
Camshaft holder I.D. (A)	26.0-26.033 (1.0236-1.0249)	——
(B)	26.010-26.031 (1.0240-1.0248)	——
Valve stem O.D. IN	4.975-4.990 (0.1959-0.1965)	4.97 (0.195)
EX	4.955-4.970 (0.1951-0.1957)	4.94 (0.194)
Valve guide I.D. IN	5.000-5.012 (0.1969-0.1973)	5.04 (0.198)
EX	5.000-5.012 (0.1969-0.1973)	5.04 (0.198)
Stem-to-guide clearance IN	0.010-0.037 (0.0006-0.0017)	0.07 (0.003)
EX	0.030-0.057 (0.0012-0.0022)	0.09 (0.004)
Valve guide projection above cylinder head IN	——	——
EX	——	——
Before guide installation: 1. Chill the valve guides in the freezer section of a refrigerator for about an hour. 2. Heat the cylinder head to 100-150°C (212-300°F).		
Valve seat width	0.9-1.1	1.5 (0.06)
Valve spring free length IN	43.7 (1.720)	42.2 (1.66)
EX	43.7 (1.720)	42.2 (1.66)
inner IN	——	——
inner EX	——	——
outer IN	——	——
outer EX	——	——
Rocker arm I.D. IN	——	——
EX	——	——
Sub-rocker arm I.D. IN	——	——
EX	——	——
Rocker arm shaft O.D. IN	——	——
EX	——	——
Sub-rocker arm shaft O.D. IN	——	——
EX	——	——
Rocker arm-to-rocker arm shaft clearance	——	——
Sub-rocker arm-to-rocker arm shaft clearance	——	——
Valve lifter O.D.	——	——
Valve lifter bore I.D.	——	——
Hydraulic lash adjuster assist spring free length	——	——
Hydraulic lash adjuster compression stroke with kerosene	0-0.2 (0-0.008)	——

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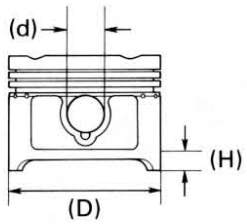
Unit:mm(in)

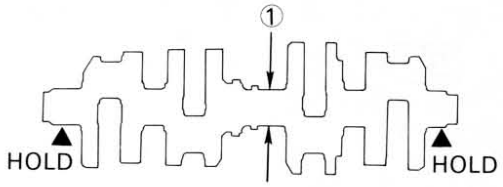
Cylinder/Piston

Item	Standard	Service Limit
Cylinder I.D.	67.0–67.010 (2.638–2.6381)	67.10 (2.641)
Cylinder out of round	——	0.05 (0.002)
Cylinder taper	——	0.05 (0.002)
Cylinder warpage	——	0.10 (0.004)
Piston mark direction	"IN" mark facing toward the intake side	——
Piston O.D. (D)	66.96–66.99 (2.636–2.637)	66.90 (2.634)
Piston O.D. measurement point (H)	14mm (0.55 in) from the bottom	——
Piston pin hole I.D. (d)	17.002–17.008 (0.6694–0.6696)	17.05 (0.671)
Cylinder-to-piston clearance	0.01–0.050 (0.0003–0.0019)	0.10 (0.004)
Piston pin O.D.	16.994–17.000 (0.6691–0.6693)	16.98 (0.669)
Piston-to-piston pin clearance	0.002–0.014 (0.0001–0.0006)	0.04 (0.002)
Connecting rod-to-piston pin clearance	0.016–0.040 (0.0004–0.0020)	0.06 (0.002)
Top ring-to-ring groove clearance	0.015–0.045 (0.0006–0.0018)	0.06 (0.002)
Second ring-to-ring groove clearance	0.015–0.045 (0.0006–0.0018)	0.06 (0.002)
Top ring end gap	0.15–0.30 (0.006–0.012)	0.5 (0.019)
Second ring end gap	0.30–0.45 (0.012–0.018)	0.65 (0.025)
Oil ring(side rail) end gap	0.20–0.70 (0.008–0.028)	0.9 (0.035)
Top ring mark	"R" Mark side facing up	——
Second ring mark	"RN" Mark side facing up	——



Crankshaft

Connecting rod small end I.D.	17.016–17.034 (0.6699–0.6706)	17.07 (0.672)
Connecting rod big end side clearance	0.05–0.20 (0.002–0.008)	0.3 (0.01)
radial clearance	——	——
Crankshaft runout ①	——	0.05 (0.002)
Crankpin oil clearance	0.024–0.057 (0.0009–0.0022)	0.06 (0.002)
Connecting rod bearing selection	See page 9-15	——
Main journal oil clearance	0.020–0.054 (0.0007–0.0021)	0.06 (0.002)
Main journal bearing selection	See page 9-14	



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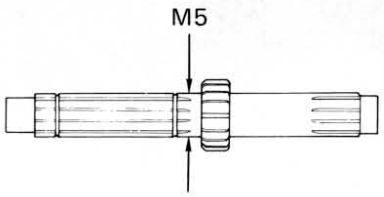
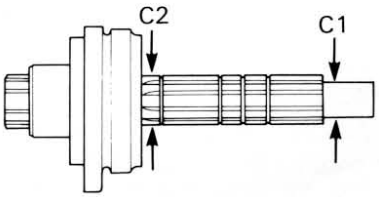
Unit:mm(in)

Transmission

Item	Standard	Service Limit
Transmission gear I.D. M5	28.000–28.021 (1.1024–1.1032)	28.04 (1.104)
C1	24.000–24.021 (0.9449–0.9457)	24.04 (0.946)
C2,3,4	31.000–31.025 (1.2205–1.2215)	31.04 (1.222)
Transmission gear bushing O.D. M5	27.959–27.980 (1.1007–1.1016)	27.94 (1.100)
C2,3,4	30.950–30.975 (1.2185–1.2195)	30.93 (1.222)
Transmission gear bushing I.D. M5	24.985–25.006 (0.9837–0.9845)	25.03 (0.985)
C2	27.985–28.006 (1.1018–1.1026)	28.03 (1.104)
Gear-to-bushing clearance at M5 gear	0.020–0.062 (0.0008–0.0024)	0.10 (0.004)
C2,3,4	0.025–0.075 (0.0010–0.0030)	0.11 (0.004)
Mainshaft O.D. at M5 gear	24.959–24.980 (0.9826–0.9835)	24.94 (0.982)
		
Countershaft O.D. at C1 gear	19.987–20.000 (0.7869–0.7874)	19.97 (0.786)
C2 gear	27.967–27.980 (1.1011–1.1016)	27.94 (1.100)
		
Gear-to-shaft clearance	—	—
Gear bushing-to-shaft clearance at M5 gear	0.005–0.047 (0.0002–0.0019)	0.08 (0.003)
C2	0.005–0.039 (0.0002–0.0015)	0.08 (0.003)
Shift fork claw thickness (L)	6.43–6.50 (0.253–0.256)	6.1 (0.24)
(C)	6.43–6.50 (0.253–0.256)	6.1 (0.24)
(R)	6.43–6.50 (0.253–0.256)	6.1 (0.24)
Shift fork I.D. (L)	14.000–14.021 (0.5512–0.5520)	14.04 (0.553)
(C)	—	—
(R)	14.000–14.021 (0.5512–0.5520)	14.04 (0.553)
Shift fork shaft O.D.	13.966–13.984 (0.5498–0.5505)	13.90 (0.547)

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Unit: mm (in)

Clutch System

Item	Standard	Service Limit
Clutch lever free play	10–20 (3/8–3/4)	———
Recommended clutch fluid	———	———
Clutch master cylinder I.D.	———	———
Clutch master piston O.D.	———	———
Clutch outer I.D.	———	———
Clutch outer guide O.D.	———	———
I.D.	24.995–25.012 (0.9841–0.9847)	25.08 (0.987)
Mainshaft O.D. at clutch outer guide	———	———
Clutch spring free height	———	———
Clutch spring free lenght	40.1 (1.58)	38.6 (1.52)
Clutch disc thickness	———	———
Clutch disc thickness (A)	3.22–3.38 (0.127–0.133)	2.90 (0.11)
(B)	3.22–3.38 (0.127–0.133)	2.90 (0.11)
(C)	3.42–3.58 (0.135–0.141)	3.20 (0.12)
Clutch plate warpage	———	0.3 (0.01)
Centrifugal clutch drum I.D.	———	———
bushing O.D.	———	———
Centrifugal clutch center guide I.D.	———	———
O.D.	———	———
Centrifugal clutch center guide collar height	———	———
Centrifugal clutch weight lining thickness	———	———
Centrifugal clutch spring free lenght	———	———
Clutch lining thickness	———	———
Crankshaft O.D. at clutch center	———	———

Cooling System

Coolant capacity (Radiator and engine)	———	———
(Reserve tank)	———	———
Radiator cap relief pressure	———	———
Thermostat begins to open	———	———
Thermostat fully open	———	———
Thermostat valve lift	———	———

Drive Train

Recommended final drive oil	———	———
Final drive gear oil capacity at disassembly	———	———
at draining	———	———
Final drive gear backlash	———	———
Final drive gear backlash difference between	———	———
measurement	———	———
Ring gear-to-stop pin clearance (A)	———	———
Stop pin shim	———	———
Ring gear spacer	———	———
Pinion spacer	———	———
Final drive gear assembly preload	———	———
Output gear backlash	———	———
Output gear I.D.	———	———
Output gear bushing O.D.	———	———
I.D.	———	———
Output drive shaft O.D.	———	———
Output gear damper spring free length	———	———
Output shaft adjustment shim	———	———
Countershaft drive shaft adjustment shim	———	———

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Unit: mm (in)

Wheels/Tires

Item	Standard	Service Limit
Minimum tire tread depth (FR)	———	1.5 (0.06)
(RR)	———	2.0 (0.08)
Cold tire pressure Up to 90 kg (200 lb) load (FR)	225 kPa (2.25 kg/cm^2, 33 psi)	———
Up to 90 kg (200 lb) load (RR)	225 kPa (2.25 kg/cm^2, 33 psi)	———
Up to maximum weight capacity (FR)	225 kPa (2.25 kg/cm^2, 33 psi)	———
Up to maximum weight capacity (RR)	280 kPa (2.80 kg/cm^2, 41 psi)	———
Front and rear axle runout	———	0.2 (0.01)
Front and rear wheel rim runout (Radial)	———	2.0 (0.08)
(Axial)	———	2.0 (0.08)
Front wheel hub-to-rim distance	———	———
Front wheel hub standard surface	———	———
Rear wheel hub-to-rim distance	———	———
Rear wheel hub standard surface	———	———
Wheel balance weight (Front)	———	60 g (2.1 oz)
(Rear)	———	60 g (2.1 oz)
Drive chain slack	20–30 (3/4–1·3/16)	———
Drive chain size/link (DID)	DID 525 V9/110	———
(RK)	PK 525 SM4/110	———

Front Suspension

Fork spring free length	402.0 (15.82)	394.0 (15.51)
Fork spring free length (A)	———	———
(B)	———	———
Fork spring direction	Tightly wound coil facing down	———
Fork tube runout	———	0.2 (0.01)
Recommended fork oil	Fork fluid	———
Fork oil level	137 (5.4)	———
Fork oil level (R)	———	———
(L)	———	———
Fork oil capacity	472cc (15.96 USoz, 16.57 Imp oz)	———
Fork oil capacity (R)	———	———
(L)	———	———
Fork air pressure	———	———
Steering bearing preload	1.0–1.6 kg	———

Rear Suspension

Shock absorber spring free length	248.7 (9.79)	243.7 (9.59)
Shock absorber spring free length (A)	———	———
(B)	———	———
Damper gas pressure	———	———
Damper compressed gas	———	———
Damper rod compressed force at 10 mm compressed	———	———
Damper drilling point	———	———
Shock absorber spring installed length (Standard)	———	———
(Adjustable range)	———	———
Shock absorber spring adjuster standard position	2nd groove	———
Shock absorber spring direction	Tapered coil facing down	———
Recommended shock absorber oil	———	———
Shock absorber oil capacity	———	———
air pressure	———	———

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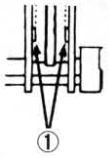
Unit: mm (in)

Brakes

Item		Standard	Service Limit
Front	brake fluid	DOT 4	———
	brake lever free play	———	———
	brake pad wear indicator ①	———	To the groove
	 ①		
	brake disc thickness	5.0 (0.20)	4.0 (0.16)
	brake disc runout	———	0.25 (0.01)
	master cylinder I.D.	11.0–11.043 (0.4331–0.4348)	11.055 (0.4352)
	master piston O.D.	10.957–10.984 (0.4314–0.4324)	10.945 (0.4309)
	caliper cylinder I.D.	27.000–27.050 (1.0630–1.0650)	27.06 (1.065)
	caliper cylinder I.D. (Upper)	———	———
	(Lower)	———	———
	caliper piston O.D.	26.935–26.968 (1.0604–1.0617)	26.93 (1.060)
	caliper piston O.D. (Upper)	———	———
	(Lower)	———	———
	brake drum I.D.	———	———
	brake lining tickness	———	———
Rear	brake fluid	———	———
	brake pedal height	———	———
	brake pedal free play	20–30 (0.8–1.2)	———
	brake pad wear indicator	———	———
	brake disc thickness	———	———
	brake disc runout	———	———
	master cylinder I.D.	———	———
	master piston O.D.	———	———
	caliper cylinder I.D.	———	———
	caliper piston O.D.	———	———
	brake drum I.D.	160.0–160.3 (6.299–6.311)	161.0 (6.33)
	brake lining thickness	5.0 (0.2)	2.0 (0.08)

Battery/Charging System

Alternator/charging coil resistance (at 20°C/68°F)	0.4–0.6 Ω	———
Regulator/rectifier regulated voltage/amperage	13.0–15.0 V/below 0.5A/2,000 rpm	———
Battery capacity	12 V–14 Ah	———
Battery specific gravity (Fully charging)	1.270–1.290	———
(Needs charging)	Below 1.260	———
Battery charging rate (Normal)	1.4 A/10h	———
(Quick)	———	———
Battery voltage (fully charged 20°C/68°F)	———	———
(needs charging 20°C/68°F)	———	———
Alternator field coil resistance (at 20°C/68°F)	2.1–2.6 Ω	———
AC regulator regulated voltage (with analogue type)	———	———
(with digital type)	———	———

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Unit: mm (in)

Ignition System

Item	Standard	Service Limit
Spark plug (Standard NGK)	DPR 8EA-9	———
(Standaed NIPPONDENSO)	X24EPR-U9	———
(For extended high speed riding NGK)	DPR 9EA-9	———
(For extended high speed riding NIPPONDENSO)	X27EPR-U9	———
Spark plug gap	0.8–0.9 mm (0.03–0.04 in)	———
Ignition timing "F" mark	10° BTDC	———
Advance start	10°/1,500rpm	———
stop	33°/4,000rpm	———
Full advance	33°/4,000rpm	———
Alternator exciter coil resistance (at 20°C/68°F)	———	———
Ignition coil resistance (Primary: at 20°C/68°F)	2.6–3.2 Ω	———
(Secondary: with plug cap)	18–22 kΩ	———
(Secondary: without plug cap)	13–17 kΩ	———
Ignition pulse generator resistance (at 20°C/68°F)	297–363 Ω	———

Lights/Meters/Switches

Main fuse	30 A	———
Fuse	10 A × 2, 15 A × 1	———
Headlight (high/low beam)	12 V 60/55 W	———
Tail/brake light	12 V 3/32 CP	———
License light	———	———
Position light	———	———
Front turn signal/running light	12 V 32/3 CP	———
Front turn signal light	———	———
Rear turn signal light	12 V 32 CP	———
Instrument lights	12 V 1.7 W × 3	———
Oil pressure warning indicator	12 V 3 W	———
Tail/brake light warning indicator	———	———
Side stand warning indicator	12 V 3 W	———
Low fuel indicator	———	———
Coolant temperature indicator	———	———
Oil temperature indicator	———	———
High beam indicator	12 V 3 W	———
Turn signal indicator	12 V 3.4 W	———
Neutral indicator	12 V 3 W	———
Reverse indicator	———	———
Overdrive indicator	———	———
Oil temperature sensor resistance	———	———
Fuel unit resistance (at full level)	———	———
(at low level)	———	———
Fuel pump flow capacity (min./minute)	———	———
Coolant temperature sensor resistance (at 50°C)	———	———

Starting System

Starter driven gear O.D.	42.175–42.200 (1.660–1.661)	———
Starter clutch outer I.D.	———	———
Starter motor brush spring tension	920g	———
brush length	12.5 (0.49)	8.5 (0.33)

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Torque Values

Standard

Item	Torque N·m (kg-m, ft-lb)	Item	Torque N·m, (kg-m, ft-lb)
5 mm hex bolt and nut	5 (0.5, 3.5)	5 mm screw	4 (0.4, 3)
6 mm hex bolt and nut	10 (1.0, 7.2)	6 mm screw	9 (0.9, 7)
8 mm hex bolt and nut	22 (2.2, 16)	6 mm flange bolt (8 mm head)	10 (1.0, 7.2)
10 mm hex bolt and nut	35 (3.5, 25)	6 mm flange bolt (10 mm head) and nut	12 (1.2, 9)
12 mm hex bolt and nut	55 (5.5, 40)	8 mm flange bolt and nut	27 (2.7, 20)
		10 mm flange bolt and nut	40 (4.0, 29)

Torque specifications listed below are for important fasteners. Others should be tightened to standard torque values listed above.

Notes:
1. Apply sealant to the threads.
2. Apply a locking agent to the threads.
3. Apply molybdenum disulfide oil to the threads and flange surface.
4. Left hand threads.
5. Stake.
6. Apply oil to the threads and flange surface.
7. Apply clean engine oil to the O-ring.
8. Torque wrench scale reading using a special tool.
9. Apply grease to the threads and flange surface.
10. UBS bolt.
11. U-nut.

Engine

Item	Q'ty	Thread dia. (mm)	Torque N·m (kg-m, ft-lb)	Remarks
Lubrication:				
Oil drain bolt	1	12	35 (3.5, 25)	
Oil filter	1	20	10 (1.0, 7.2)	
Oil pump driven sprocket bolt	1	6	12 (1.2, 9)	
Oil pipe bolt	2	8	14 (1.4, 10)	
Oil pipe bolt	3	10	31 (3.1, 22)	
Oil chamber cover bolt	2	10	12 (1.2, 9)	Note 2
Sealing bolt	6	20	30 (3.0, 22)	Note 1
Air separator cover bolt	1	9	28 (2.8, 20)	
Oil pressure switch	1	PT 1/8	12 (1.2, 9)	Note 1
Oil cooler mounting bolt	2	6	7 (0.7, 5.1)	
Cylinder Head/Cylinder:				
Cam sprocket bolt	4	7	19 (1.9, 14)	Note 2, 10
Cylinder head cap nut	12	9	28 (2.8, 20)	Note 3
Camshaft holder bolt	20	6	14 (1.4, 10)	
Cylinder head cover bolt	8	6	10 (1.0, 7.2)	
Head cover breather plate bolt	3	5	6 (0.6, 4.3)	Note 2
Cam chain tensioner mounting bolt	4	6	12 (1.2, 9)	
Spark plug	4	12	15 (1.5, 11)	
De-foarning chamber cover bolt	4	6	12 (1.2, 9)	Note 2
Clutch/Gearshift Linkage				
Change cover cap	1	24	8 (0.8, 5.8)	
Clutch center lock nut	1	22	110 (11, 80)	Note 5
Shift drum stopper arm bolt	1	6	12 (1.2, 9)	
Shift return spring pin bolt	1	8	23 (2.3, 17)	
Gear shift spindle joint bolt	1	6	14 (1.4, 10)	

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Engine

Item	Q'ty	Thread dia. (mm)	Torque N·m (kg-m, ft-lb)	Remarks
Crankcase/Crankshaft				
Crankcase bolt	14	8	23 (2.3, 17)	
Crankcase bolt	16	6	12 (1.2, 9)	
Alternator rotor bolt	1	10	34 (3.4, 25)	
Alternator cover bolt	3	6	11 (1.1, 8)	
Crankcase breather separator bolt	3	6	12 (1.2, 9)	Note 2
Connecting rod nut	8	8	32 (3.2, 23)	Note 3
Countershaft bearing cover bolt	3	8	23 (2.3, 17)	Note 2
Shift fork bolt (M)	1	7	18 (1.8, 13)	
Alternator shaft nut	1	10	34 (3.4, 25)	
Ignition pulse generator rotor bolt	1	10	35 (3.5, 25)	
Alternator drive chain tensioner bolt	3	6	12 (1.2, 9)	Note 2
Alternator drive chain slipper bolt	1	6	12 (1.2, 9)	Note 2
Alternator drive chain slipper pin bolt	1	6	12 (1.2, 9)	Note 2
Drive spvocket bolt	1	10	40 (4.0, 29)	

Frame

Item	Q'ty	Thread dia. (mm)	Torque N·m (kg-m, ft-lb)	Remarks
Fuel systems:				
Tank cap screw	2	4	3 (0.3, 2.2)	
Fuel valve nut	1	20	23 (2.3, 17)	
Front Suspention:				
Steering stem nut	1	24	105 (10.5, 76)	
Steering head bearing adjusting nut	1	26	25 (2.5, 18)	
Fork pinch bolt (upper)	2	8	23 (2.3, 17)	
Fork pinch bolt (lower)	2	10	50 (5.0, 36)	
Fork cap bolt	2	37	23 (2.3, 17)	
Fork socket bolt	2	8	20 (2.0, 14)	Note 2
Handlebar holder nut	2	10	40 (4.0, 29)	Note 11
Fork drain bolt	2	6	7.5 (0.75, 5.4)	
Rear Suspension:				
Swingarm pivot nut	1	14	90 (9.0, 65)	Note 9, 11
Shock mounting bolt (upper)	2	10	35 (3.5, 25)	
Shock mounting bolt (lower)	2	10	35 (3.5, 25)	
Drive chain adjuster lock nut	2	8	22 (2.2, 16)	
Wheels:				
Front axle bolt	1	14	60 (6.0, 43)	
Front axle pinch bolt	4	8	22 (2.2, 16)	
Rear axle nut	1	16	90 (9.0, 65)	Note 11
Driven sprocket nut	5	12	100 (10, 72)	Note 6
Brake:				
Brake arm pinch bolt	1	8	27 (2.7, 20)	
Caliper bracket bolt	2	8	31 (3.1, 22)	
Brake hose bolt	2	10	35 (3.5, 25)	
Pad pin plug	1	10	2.5 (0.25, 1.8)	
Pad pin	1	10	18 (1.8, 13)	
Caliper pin bolt	1	8	23 (2.3, 17)	Note 2
Bracket pin bolt	1	8	13 (1.3, 9)	Note 2
Master cylinder holder bolt	2	6	12 (1.2, 9)	
Brake disc bolt	6	8	43 (4.3, 31)	Note 2
Brake lever pivot bolt	1	6	1 (0.1, 0.7)	
Brake lever pivot nut	1	6	6 (0.6, 4.3)	
Front brake light switch screw	1	4	1.2 (0.12, 0.9)	
Reservoir cover screw	2	4	1.5 (0.15, 1.1)	

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Frame

Item	Q'ty	Thread dia. (mm)	Torque N·m (kg-m, ft-lb)	Remarks
Frame/Exhaust systems:				
Rear fender A mounting bolt	2	8	12 (1.2, 9)	
Ignition switch mounting bolt	2	8	25 (2.5, 18)	
Exhaust pipe joint nut	8	7	20 (2.0, 14)	
Rear fairing screw	2	8	12 (1.2, 9)	
Side stand pivot bolt	1	10	10 (1.0, 7.2)	
Side stand pivot nut	1	10	30 (3.0, 22)	Note 11
Engine front bracket bolt	4	8	40 (4.0, 29)	
Engine lower bracket bolt (right)	2	8	40 (4.0, 29)	
Engine lower mounting bolt (left)	1	10	50 (5.0, 36)	
Engine rear mounting nut	1	10	50 (5.0, 36)	
Engine front mounting nut	1	10	50 (5.0, 36)	
Engine lower mounting bolt (right)	1	10	50 (5.0, 36)	
Engine rear bracket bolt	2	8	40 (4.0, 29)	

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Tools

Description	Tool Number	Applicability
Maintenance:		
Pilot screw wrench	07908–4730001	equivalent commercially available in U.S.A. (Cal Van 466)
Oil filter wrench	07HAA–PJ70100	
Lubrication:		
Oil pressure gauge	07506–3000000	equivalent commercially available in U.S.A.
Oil pressure gauge attachment	07510–MJ10100	
Fuel System:		
Float level gauge	07401–0010000	
Cylinder Head/Cylinder/Piston:		
Valve spring compressor	07757–0010000	
Valve spring compressor attachment	07959–KM30101	
Valve guide driver, 5.0 mm	07942–MA60000	
Valve guide reamer, 5.0 mm	07984–MA60001	or 07984–MA6000C (U.S.A. only)
Valve seat cutter		
seat cutter, 24.5 mm (45° EX)	07780–0010100	equivalent commercially available in U.S.A.
27.5 mm (45° IN)	07780–0010200	
flat cutter, 25 mm (32° EX)	07780–0012000	
28 mm (32° IN)	07780–0012100	
interiorcutter, 22 mm (60° EX)	07780–0014202	
26 mm (60° IN)	07780–0014500	
cutter hoider, 5 mm	07781–0010400	
Piston ring compressor	07954–3690000	
Piston base	07958–3000000	
Hydraulic tappet bleeder	07973–MJ00000	
Clutch/Gearshift Linkage:		
Clutch center holder	07JMB–MN50300	or 07HGB–001000A (U.S.A. only)
Lock nut wrench, 26 x 30 mm	07716–0020203	
Extension bar	07716–0020500	or equivalent commercially available in U.S.A.
Crankshaft/Transmission:		
Universal holder	07725–0030000	
Bearing remover, 17 mm	07936–3710300	
Handle	07936–3710100	
Sliding weight	07741–0010201	or 07936–3710200
Attachment, 37 x 40 mm	07746–0010200	
Attachment, 42 x 47 mm	07746–0010300	
Pilot, 20 mm	07746–0040500	
Pilot, 17 mm	07746–0040400	
Driver	07749–0010000	
Driver	07949–3710001	
Driver, 22 mm I.D.	07746–0020100	
Driver, 40 mm I.D.	07746–0030100	
Attachment, 20 mm I.D.	07746–0020400	
Attachment, 25 mm I.D.	07746–0030200	
Attachment, 30 mm I.D.	07746–0030300	
Front Wheel/Suspension/Steering:		
Ball race remover	07946–3710500	
Ball race remover	07953–MJ1000A	
–attachment	07953–MJ10100	
–driver handle	07953–MJ10200	
Steering stem driver	07946–MB00000	
Driver	07749–0010000	
Attachment, 42 x 47 mm	07746–0010300	
Attachment, 52 x 55 mm	07746–0010400	
Steering stem socket wrench	07916–3710100	
Lock nut wrench, 30 x 32 mm	07716–0020400	
Bearing remover head, 20 mm	07746–0050600	equivalent commercially available in U.S.A.
Bearing remover shaft	07746–0050100	
Pilot, 20 mm	07746–0040500	
Fork seal driver body	07947–KA50100	
Fork seal driver attachment , 41 mm I.D.	07947–KF00100	

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Description	Tool Number	Applicability
Rear Wheel/Suspension:		
Shock absorber compressor	07GME-0010000	
Spring compressor attachment	07959-MB10000	
Spring compressor holder base	07967-KC10100	
Driver	07749-0010000	
Attachment, 28 x 30 mm	07946-1870100	
Attachment, 42 x 47 mm	07746-0010300	
Pilot, 17 mm	07746-0040400	
Attachment, 32 x 35 mm	07746-0010100	
Pilot, 15 mm	07746-0040300	
Pilot, 20 mm	07746-0040500	
Pilot, 22 mm	07746-0041000	
Bearing remover head, 17 mm	07746-0050500	equivalent commercially available in U.S.A.
Bearing remover shaft	07746-0050100	
Driver shaft	07946-MJ00100	
Needle bearing remover attachment	07GMD-KT70200	
Bearing remover, 15 mm	07936-KC10000	or 07936-KC10500
-remover shaft, 15 mm	07936-KC10100	
-remover head, 15 mm	07936-KC10200	
-sliding weight	07741-0010201	or 07936-3710200
Brake System:		
Snap ring pliers	07914-3230001	
Charging System/Alternator:		
Flywheel puller	07933-2160000	
Lights/Meters/Switches:		
Torx bit (T40)	07703-0010100	or equivalent commercially available in U.S.A.
Electrical Equipment:		
Digital multimeter (KOWA)	07411-0020000 KS-AHM-32-003 (U.S.A. only)	
Analogue tester	07308-0020001 (SANWA) or TH-5H (KOWA)	

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Lubrication & Seal Points

Engine

Location	Material	Remarks
Hydraulic tappet hole Camshaft holder de-foaming chamber Cam chain/alternator chain Transmission gear teeth and bushings Piston pin hole and outer surface Piston pin outer surface Each bearings Piston ring sliding surface Piston ring and ring groove Cylinder sliding surface Alternator shaft damper cam Clutch lifter Shift fork claw and pivot inner surface Shift drum O-rings Clutch discs	Engine oil	
Rocker arm slipper surface and pivot inner surface Camshaft lobe and journal Connecting rod small end Valve stem (valve guide sliding surface) Valve guide (valve stem sliding surface) Transmission gear shift fork grooves Crankshaft bearing sliding surface Connecting rod bearing sliding surface Crankshaft thrust sliding surface Primary driven gear	Molybdenum disulfide oil (amixture of 1/2 engine oil and 1/2 molybdenum disulfide grease)	
Hydraulic tappet	Kerosene	
Upper crankcase mating surface –countershaft bearing cover mating surface –clutch cover mating surface Cylinder head/cylinder head cover gasket surface	Liquid sealant	Do not apply sealant to the main journal bearings.

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Frame

Location	Material	Remarks
Steering stem bearing Wheel bearing dust seal lips Wheel axle outer surface Handlebar (throttle grip sliding surface) Throttle cable ends Brake pedal pivot shaft Side stand pivot bolt outer surface Dust seal lips Speedometer gear Seat locking tab Swingarm pivot bearings Swingarm pivot bearing dust seal lips Rear brake cam	Multi-purpose grease	Apply thin coat of grease
Side reflector threads Caliper bracket pin bolt threads Caliper pin bolt threads Seat catch hook mounting bolt threads	Locking agent	
Fork cap O-ring Fork oil seal lips	Honda Suspension Fluid SS-7	
Handlebar grip	Honda Bond A or Honda Hand Grip Cement (U.S.A. only)	
Brake caliper seals Caliper-piston sliding surface Master cylinder piston caps Master cylinder-piston sliding surface	DOT 4 Brake fluid	
Steering stem lock nut threads Steering head bearing adjustment nut	Engine oil	

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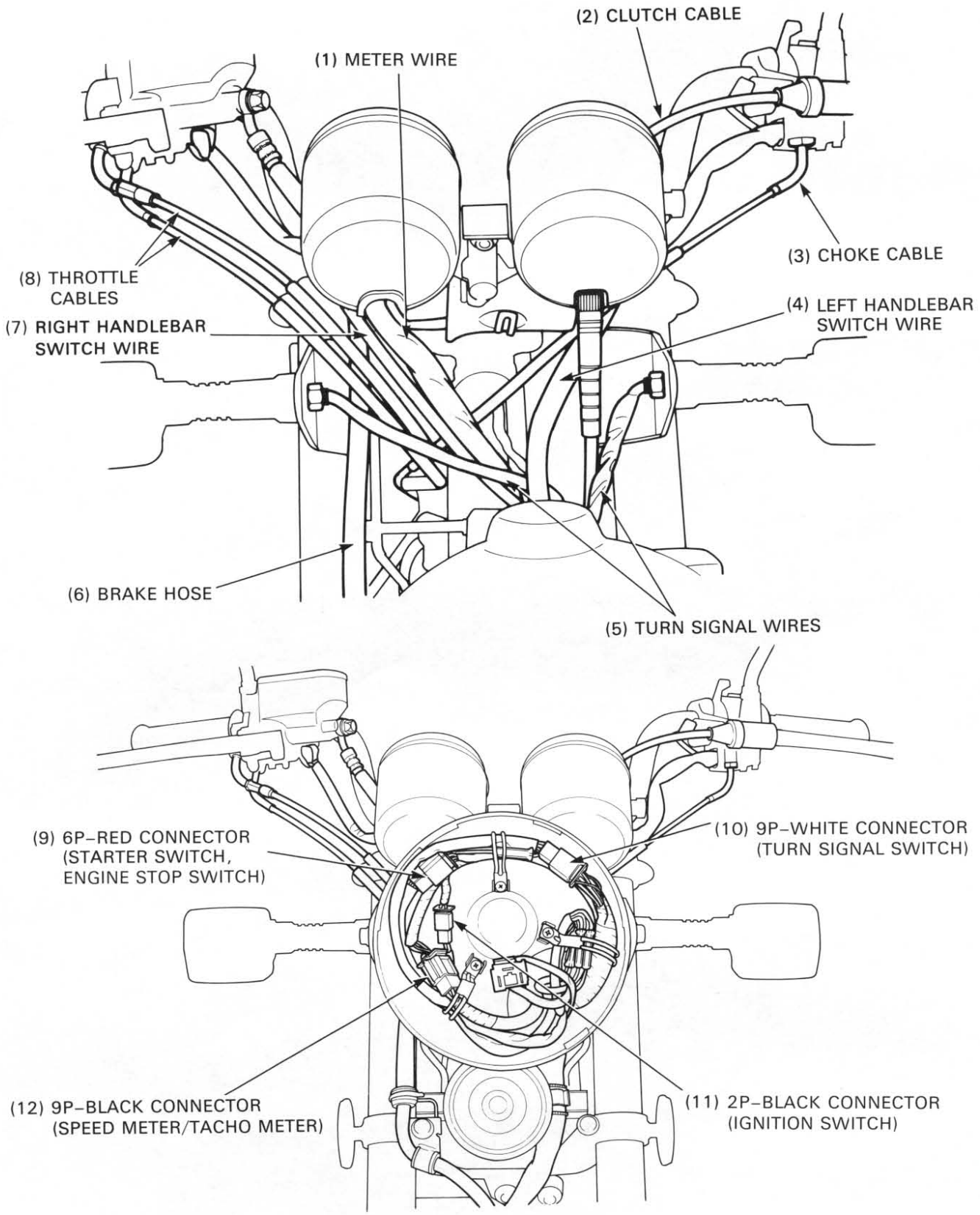
Cable & Harness Routing

: Indicates the clamping wire



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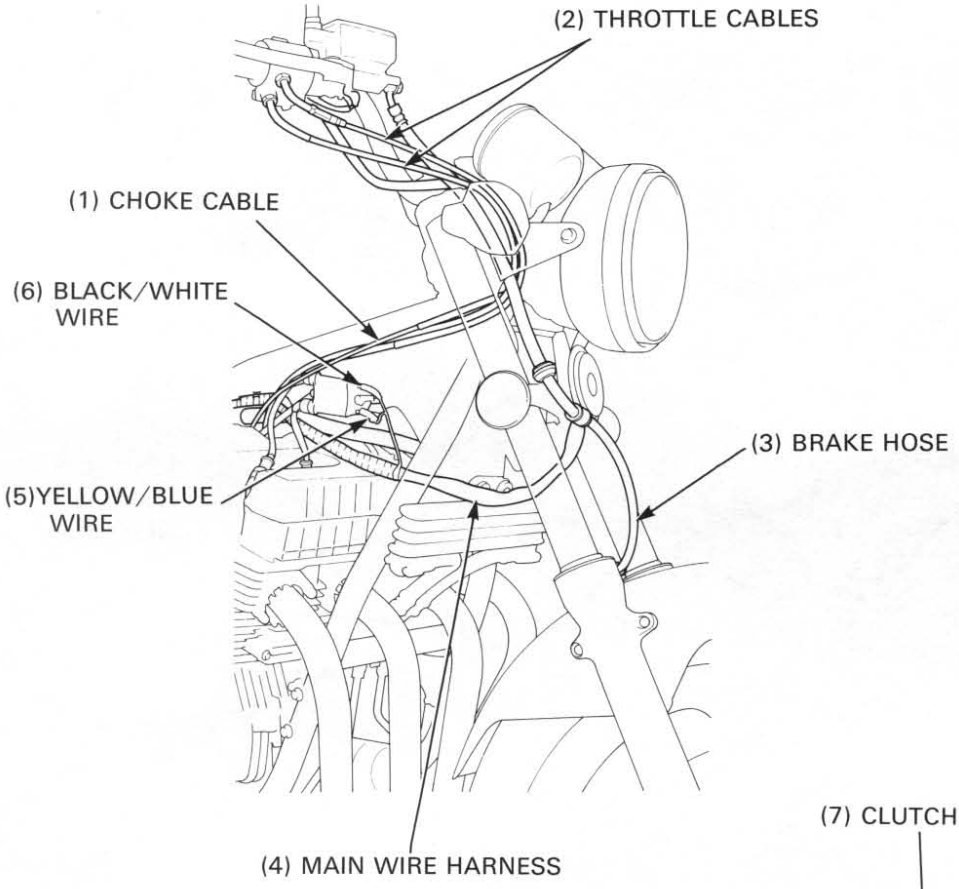

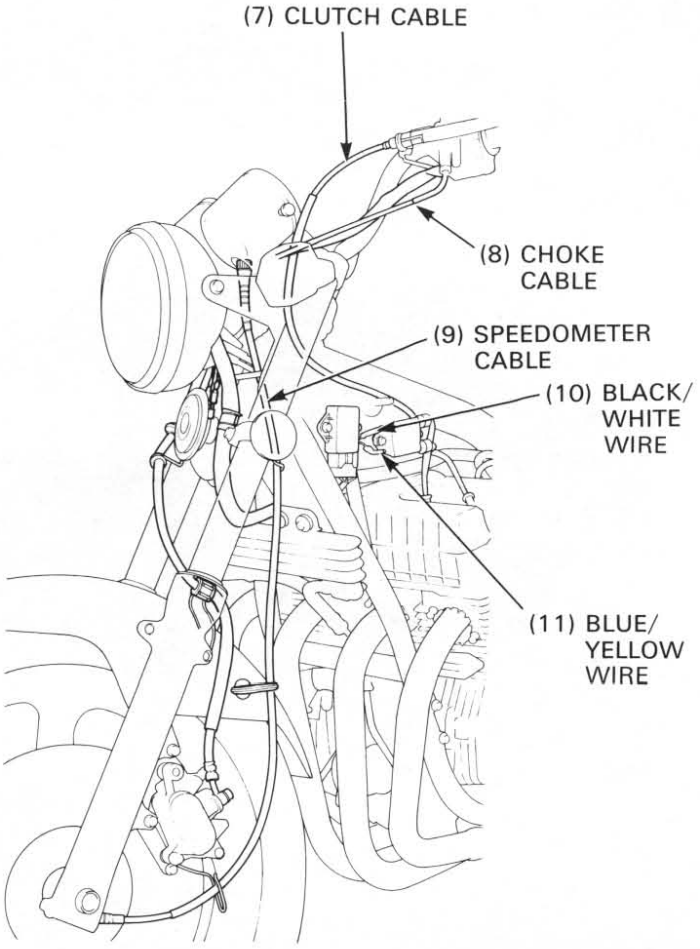

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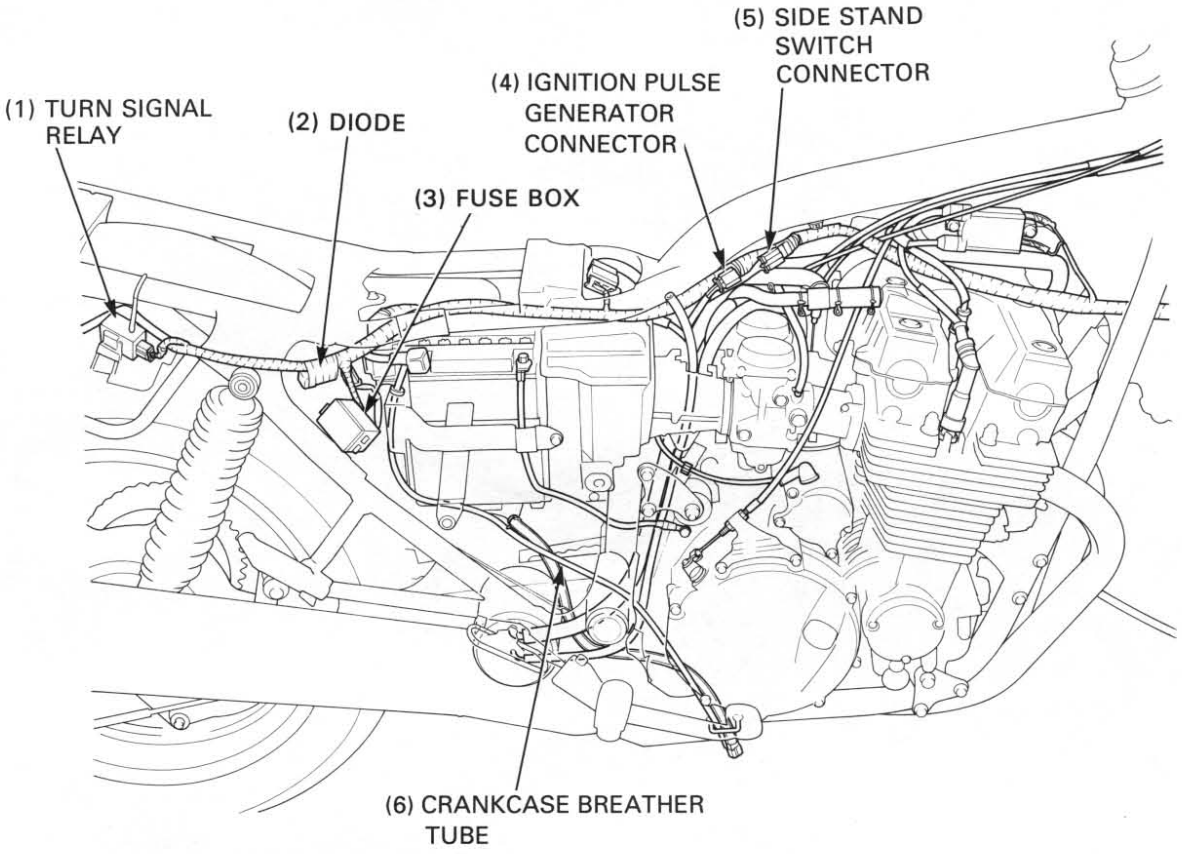

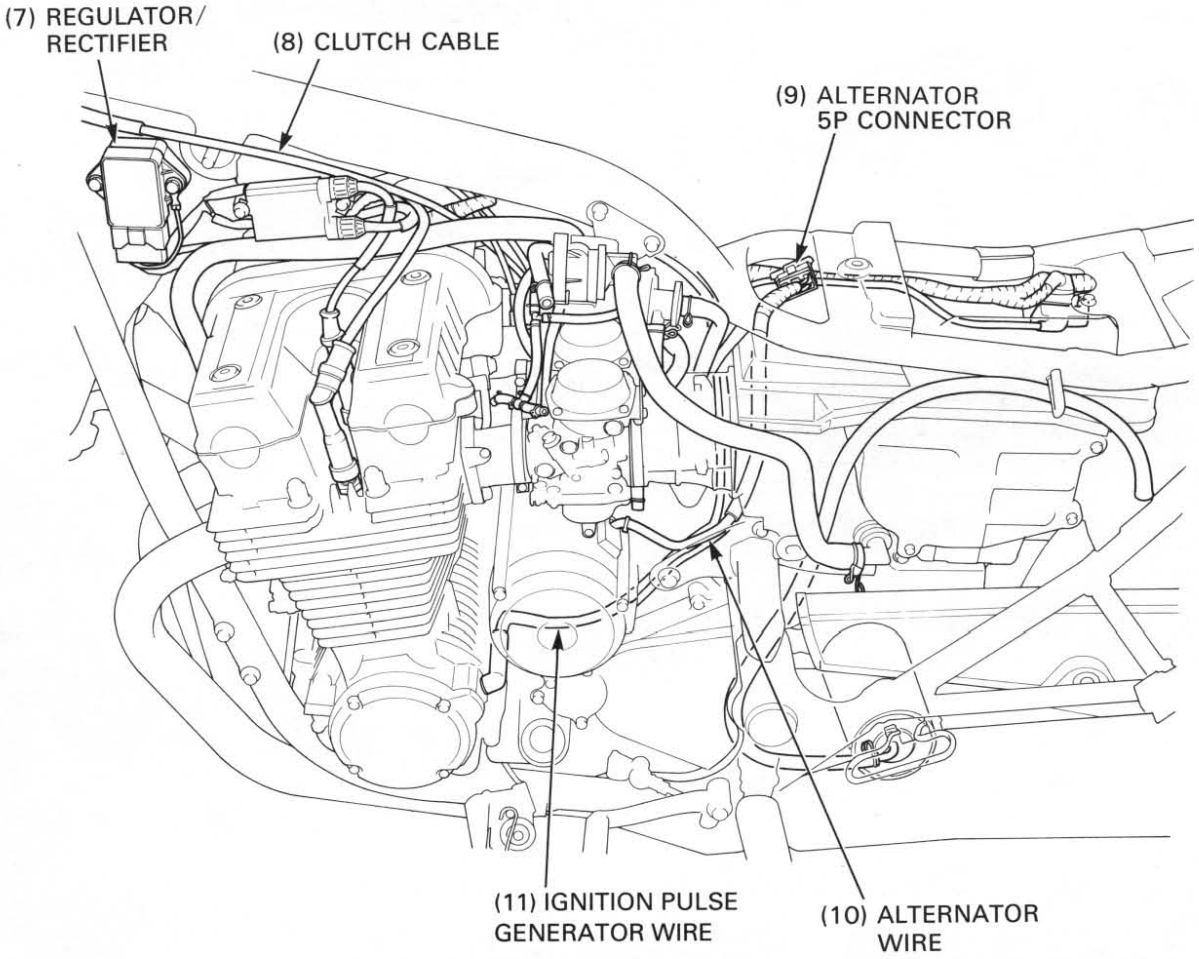

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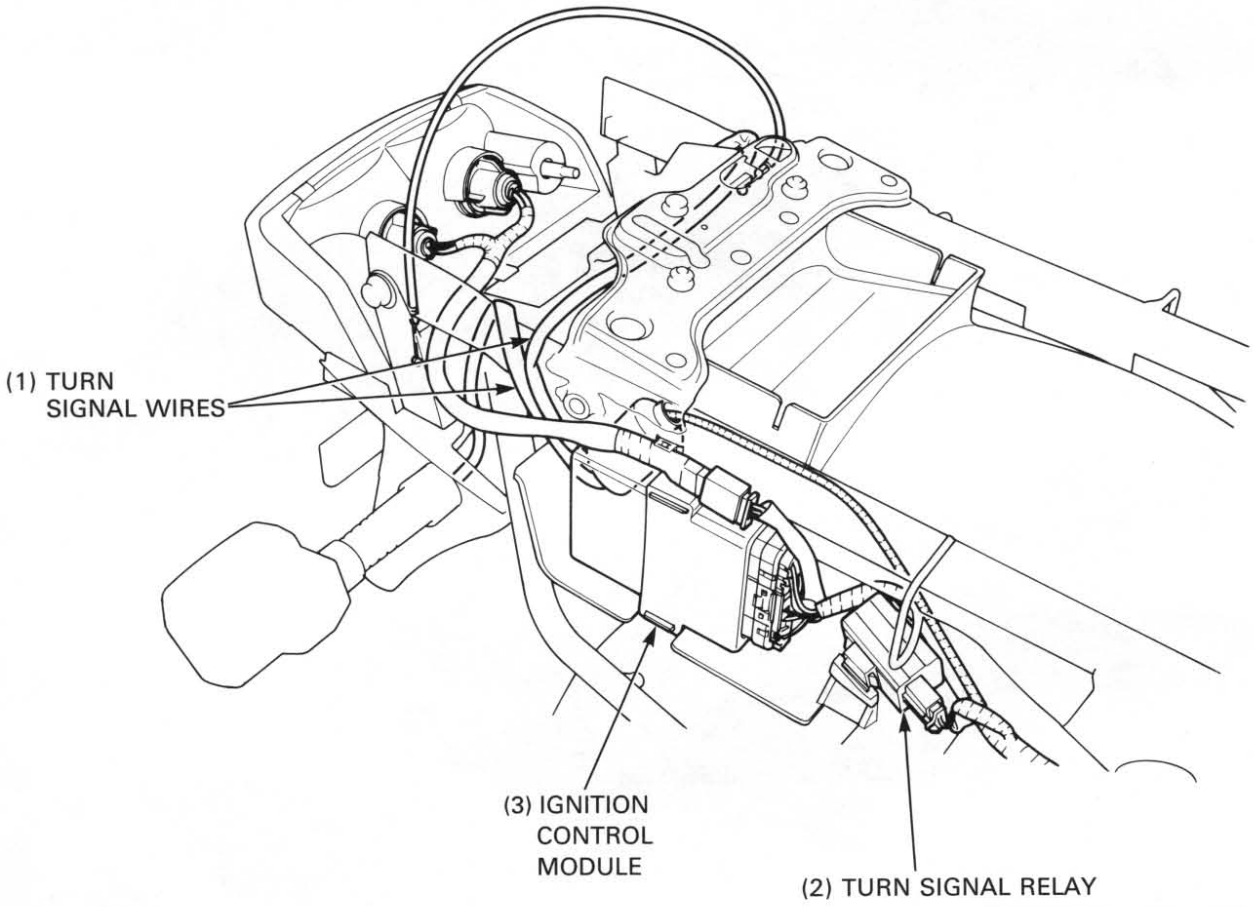

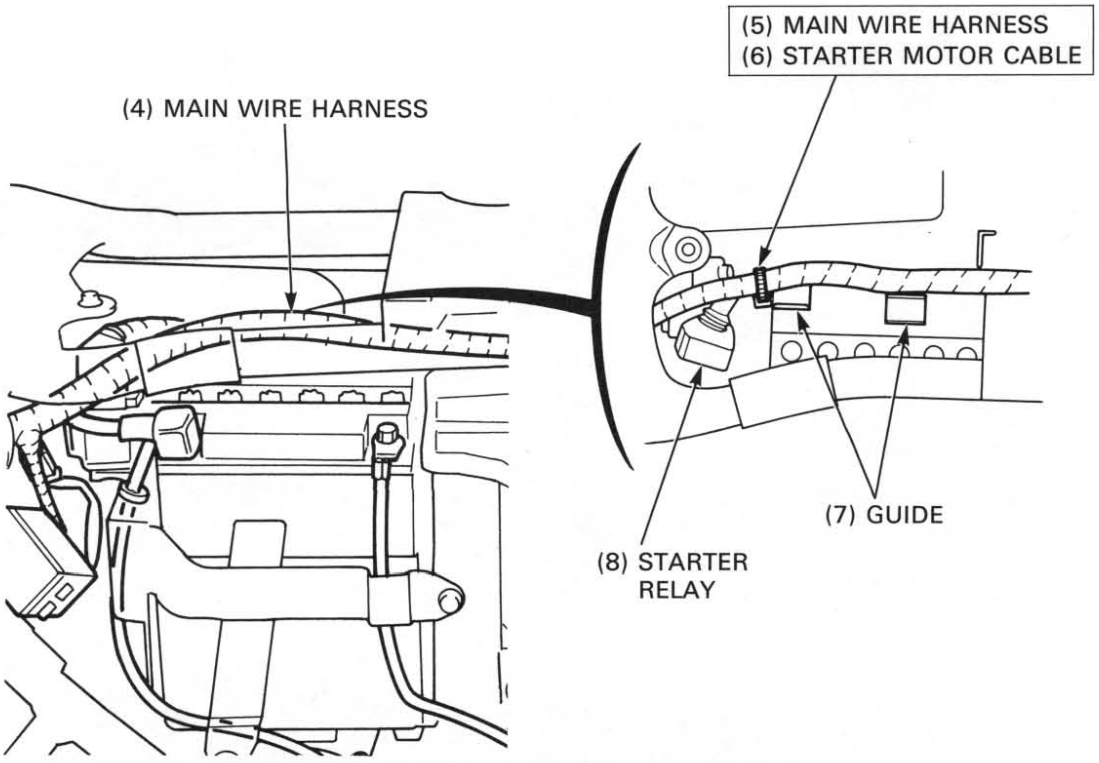

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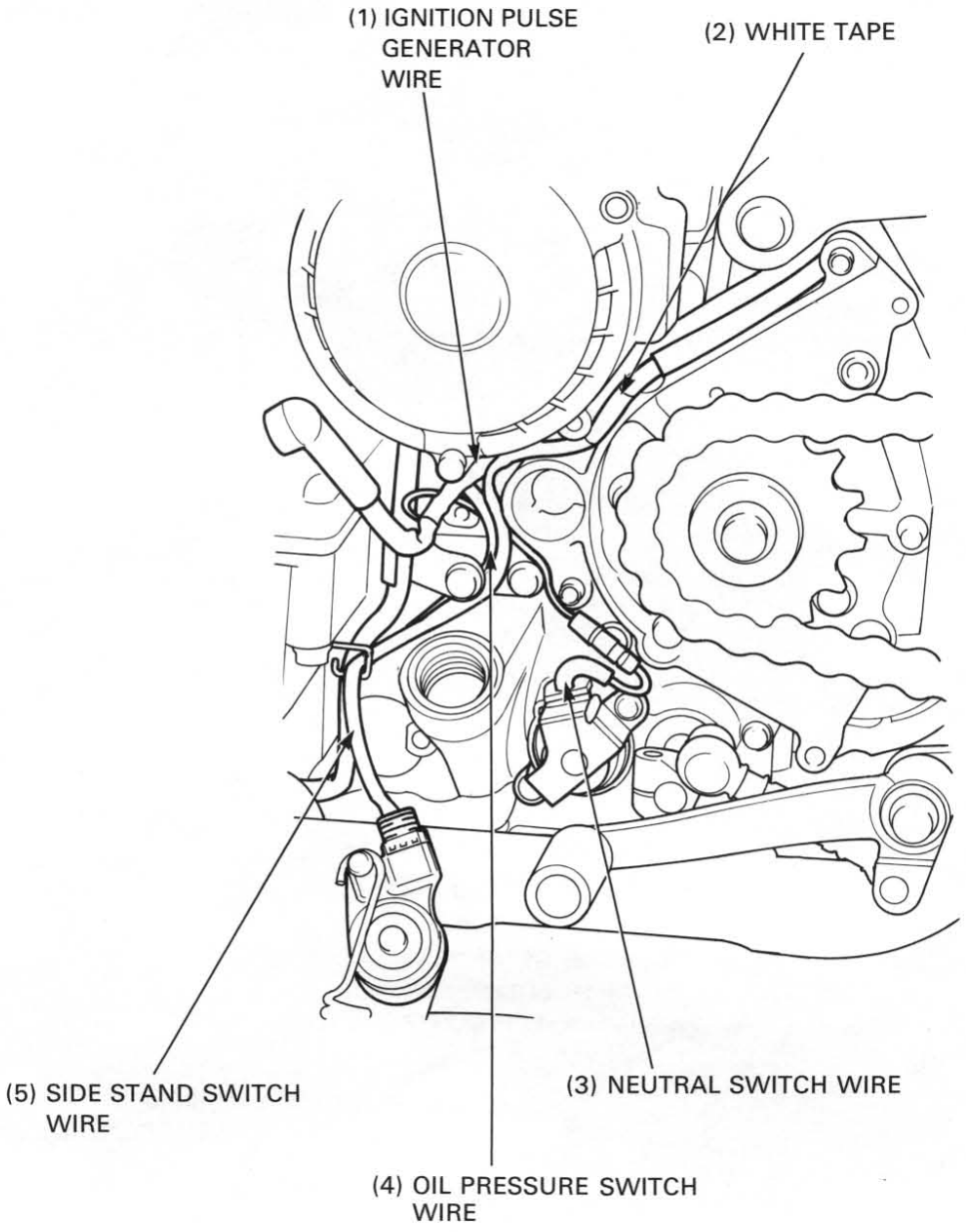

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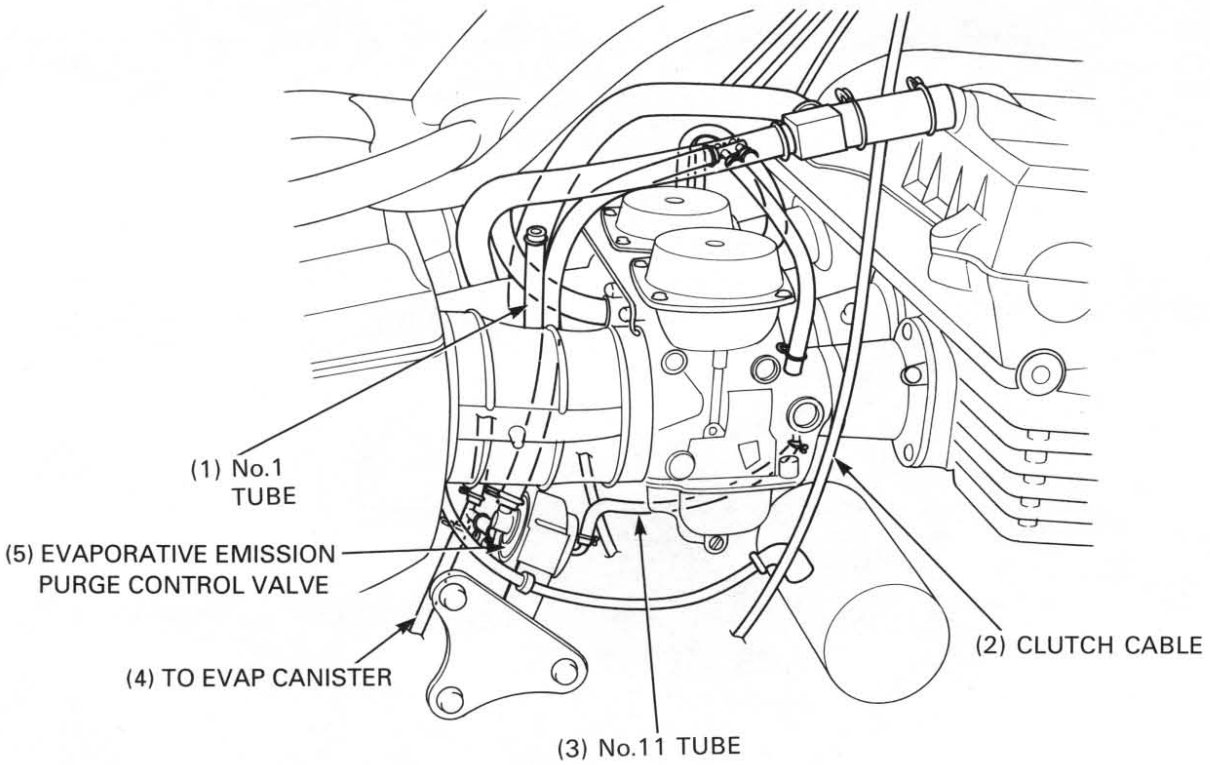

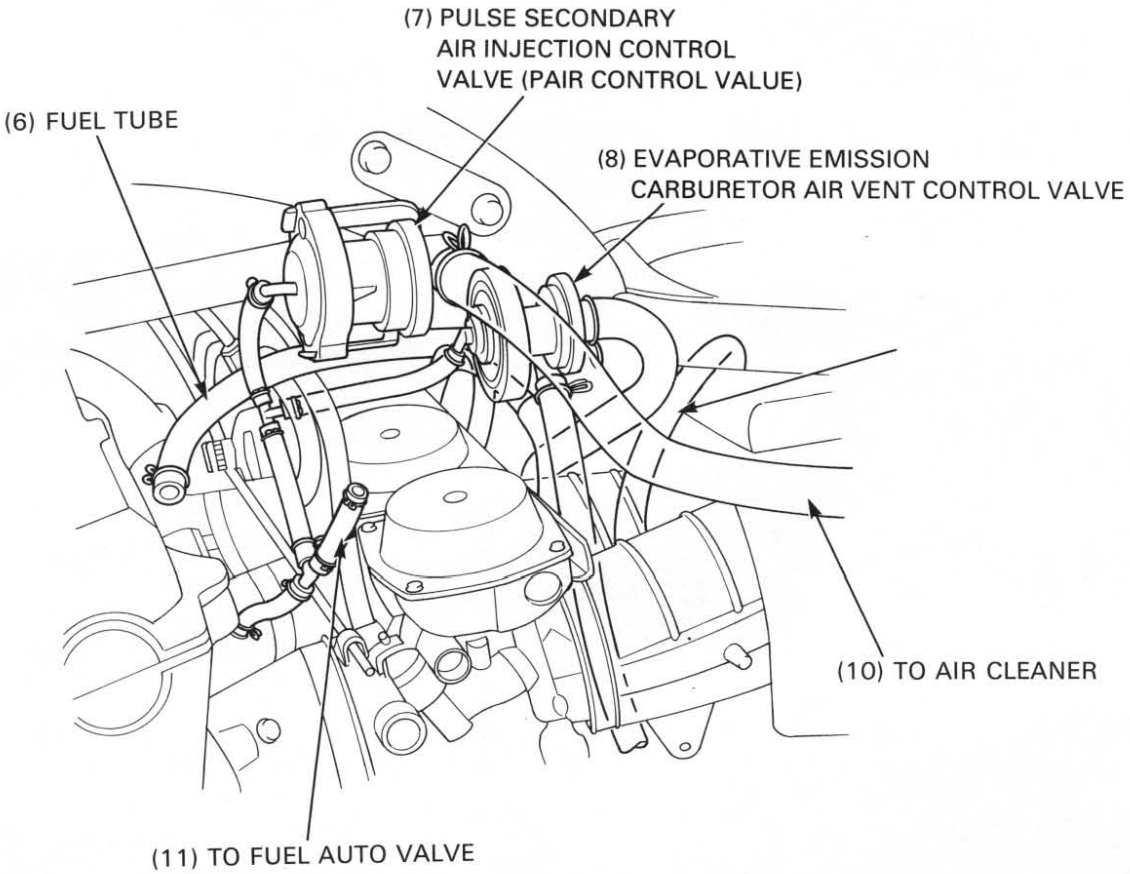

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Emission Control System

The U.S. Environmental Protection Agency and California Air Resources Board (CARB) require manufacturers to certify that their motorcycles comply with applicable exhaust emissions standard during their useful life, when operated and maintained according to the instructions provided, and that motorcycles built after January 1, 1983 comply with applicable noise emission standards for 1 year or 6,000 km (3.730 miles) after the time of sale to the ultimate purchaser, when operated and maintained according to the instructions provided. Compliance with the terms of the Distributor's Warranties for Honda Motorcycle Emission Control Systems is necessary in order to keep the emissions system warranty in effect.

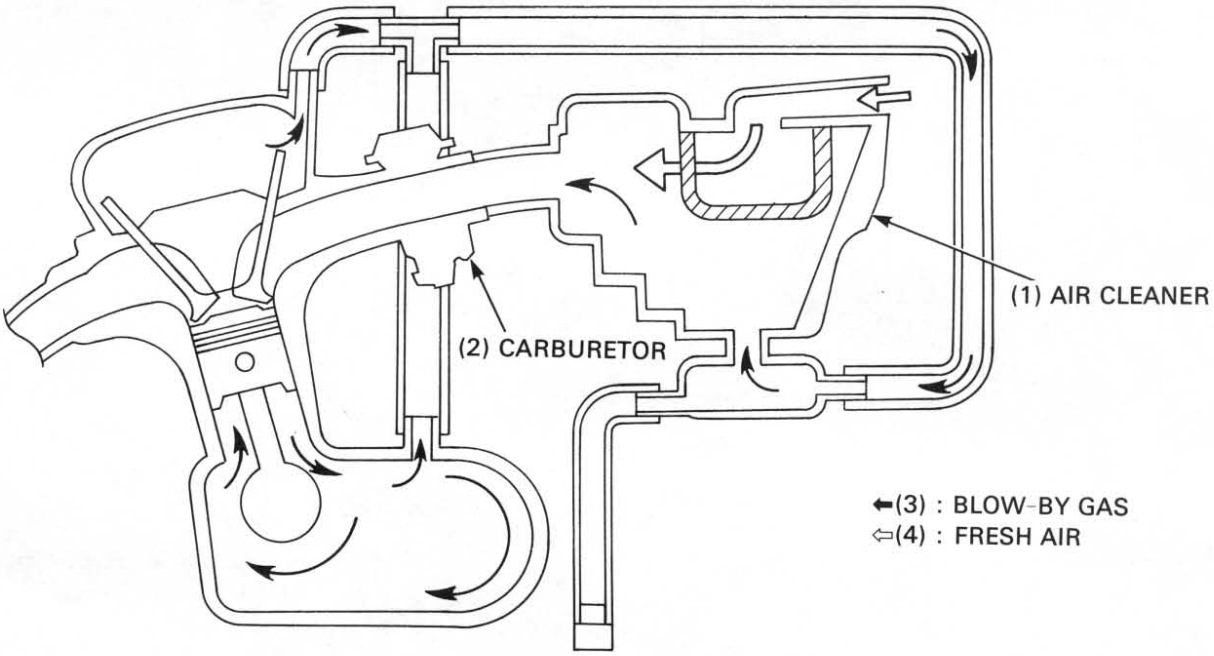
Source Of Emissions

The combustion process produces carbon monoxide and hydrocarbons. Control of hydrocarbons is very important because, under certain conditions, they react to form photochemical smog when subjected to sunlight. Carbon monoxide does not react in the same way, but it is toxic.

Honda Motor Co., Ltd . utilizes lean carburetor settings as well as other systems, to reduce carbon monoxide and hydrocarbons.

Crankcase Emission Control System

The crankcase emission control system routes crankcase emission through the air cleaner and into the combustion chamber. Condensed crankcase vapors are accumulated in the drain tube which must be emptied periodically. Refer to the Maintenance Schedule (page 3-4). The drain tube needs to be checked for oil accumlation more frequently if the machine has been consistently ridden at high speeds or in rain.



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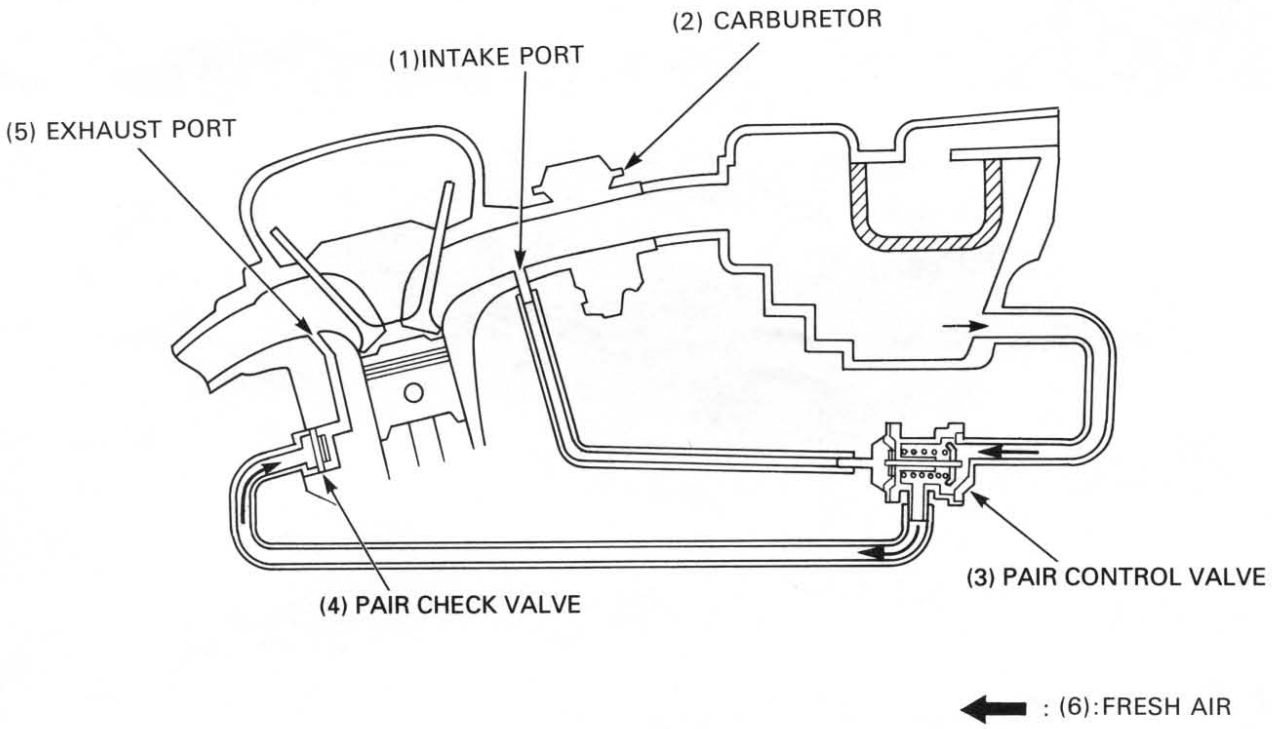
Exhaust Emission Control System

(Except California model)
The exhaust emission control system is composed of lean carburetor settings and no adjustment should be made except idle speed adjustment with the throttle stop screw.

(California model)
The exhaust emission control system consists of a pulse secondary air supply system which introduces filtered air into the exhaust gases in the exhaust port. Fresh air is drawn into the exhaust port whenever there is a negative pressure pulse in the exhaust system. This charge of fresh air promotes burning of the unburned exhaust gases and changes a considerable amount of hydrocarbons and carbon monoxide into relatively harmless carbon dioxide and water vapor.
A pulse secondary air injection check valve (PAIR check valve) prevents reverse air flow through the system. The pulse secondary air injection control valve (PAIR control valve) reacts to high intake manifold vacuum and will cut off the supply of fresh air during engine deceleration, thereby preventing afterburn in the exhaust system.

No adjustments to the pulse secondary air supply system should be made, although periodic inspection of the components is recommended.

(California Model Only)



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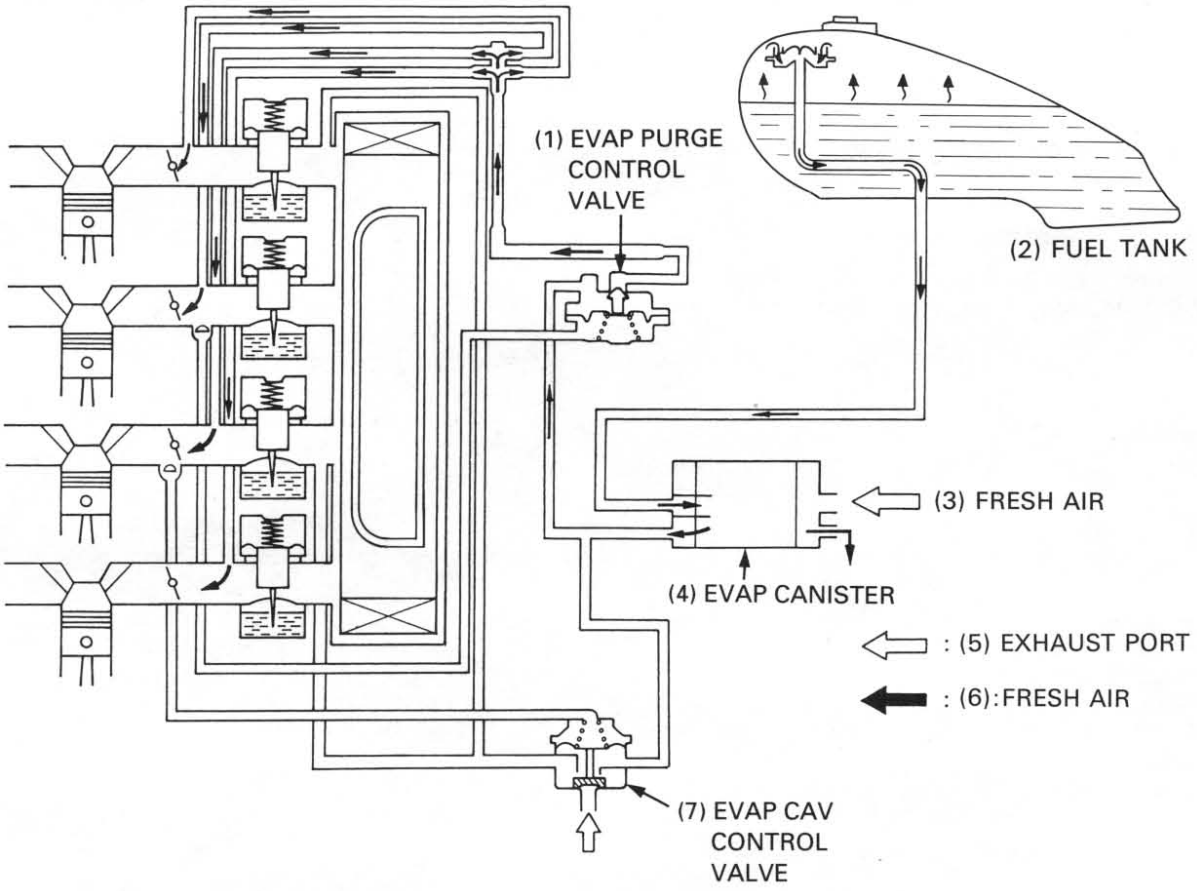
Evaporative Emission Control System(California Model Only)

This vehicle complies with the California Air Resources Board requirements for evaporative emission regulations.

Fuel vapor from the fuel tank and carburetor is routed into the evaporative emission canister (EVAP canister) where it is absorbed and stored while the engine is stopped. When the engine is running and the evaporative emission purge control diaphragm valve (EVAP purge control valve) is open fuel vapor in the EVAP canister is drawn into the engine through the carburetor. At the same time, the evaporative emission carburetor air vent control valve (EVAP CAV control valve) is open and air is drawn into the carburetor through the valve.

(California Model Only)



Noise Emission Control System

TAMPERING WITH THE NOISE CONTROL SYSTEM IS PROHIBITED: Federal law prohibits the following acts or the causing thereof: (1) the removal or rendering inoperative by any person, other than for purposes of maintenance, repair or replacement, of any device or element of design incorporated into any new vehicle for purpose of noise control prior to its sale or delivery to the ultimate purchaser or while it is in use; or (2) the use of the vehicle after such device or element of design has been removed or rendered inoperative by any person.

Among those acts presumed to constitute tampering are the acts listed below:

1. Removal of, or puncturing the muffler, baffles, header pipes or any other component which conducts exhaust gases.
2. Removal of, or puncturing of any parts of the intake system.
3. Lack of proper maintenance.
4. Replacing any moving parts of the vehicle, or parts of the exhaust or intake system, with parts other than those specified by the manufacturer.

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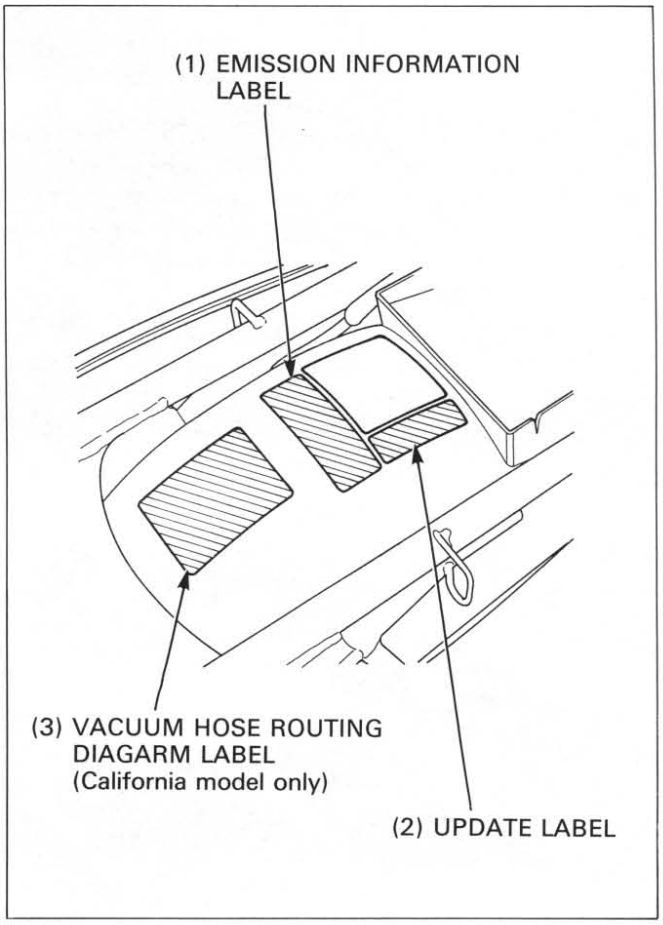
Emission Control Information Labels (U.S.A. Only)

An Emission Information Label is located on the rear fender as shown. The seat must be removed to view it.
It gives basic tune-up specifications.



Vehicle Emission Control Information Update Label

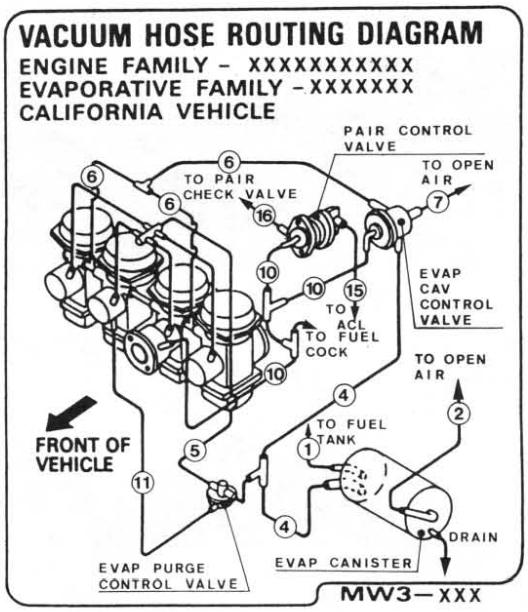
After making a high altitude carburetor adjustment, attach an update label on the rear fender as shown.

After re-adjusting the carburetor back to standard settings for low altitude, remove the update label.

Vacuum Hose Routing Diagram Label (California Model Only)

The Vacuum Hose Routing Diagram Label is on the rear fender as shown.
The seat must be removed to view it.

Route the vacuum hoses as shown on this label.



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2. Frame/Body Panels/Exhaust System

Service Information

⚠WARNING

- **Gasoline is extremely flammable and is explosive under certain conditions. KEEP OUT OF REACH OF CHILDREN.**
- **Serious burns may result if the exhaust system is not allowed to cool before components are removed or serviced.**

- Work in a well ventilated area. Smoking or allowing flames or sparks in the working area or where gasoline is stored can cause a fire or explosion.
- This section covers removal and installation of the frame body panels, fuel tank and exhaust system.
- Always replace the exhaust pipe gaskets when removing the exhaust pipe from the engine.
- When installing the exhaust pipe, first install all the fasteners loosely. Next, tighten the exhaust clamps first, then tighten the mounting fasteners. If you tighten the mounting fasteners first, the exhaust pipe not seat properly.
- Always inspect the exhaust system for leaks after installation.

Troubleshooting

Excessive Exhaust Noise
- Broken exhaust system
- Exhaust gas leak

Poor Performance
- Deformed exhaust system
- Exhaust gas leak
- Clogged muffler

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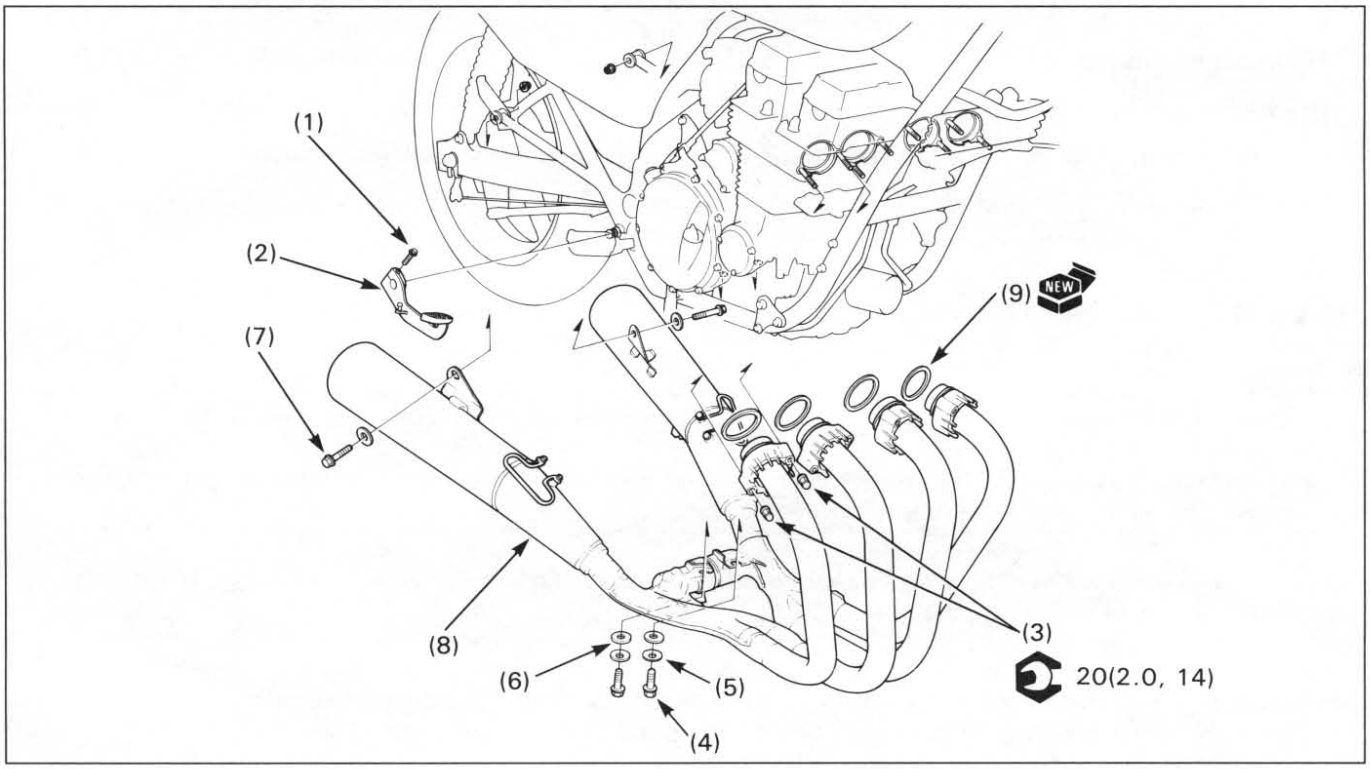
Exhaust System Removal/Installation



⚠WARNING

- **Do not service the exhaust system while it is hot.**

NOTE

- When installing the exhaust pipe/muffler, always tighten the exhaust pipe joint nuts first, then tighten the mounting fasteners.

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Brake pedal pinch bolt	1	
(2)	Brake pedal	1	Align the punch mark on the shaft with the brake pedal slot.
(3)	Exhaust pipe joint nut	8	At installation, install all fasteners loosely and tighten the
(4)	Muffler center mounting bolt	2	exhaust pipe joint nuts first.
(5)	Spring washer	2	With the "OUT" mark facing down.
(6)	Washer	2	
(7)	Muffler mounting bolt/nut	2	
(8)	Muffler assembly	1	
(9)	Gasket	4	

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Seat Removal/Installation

Removal

Insert the ignition key into the seat lock.
Turn the ignition key clockwise until it stops then remove the seat by sliding it backward.

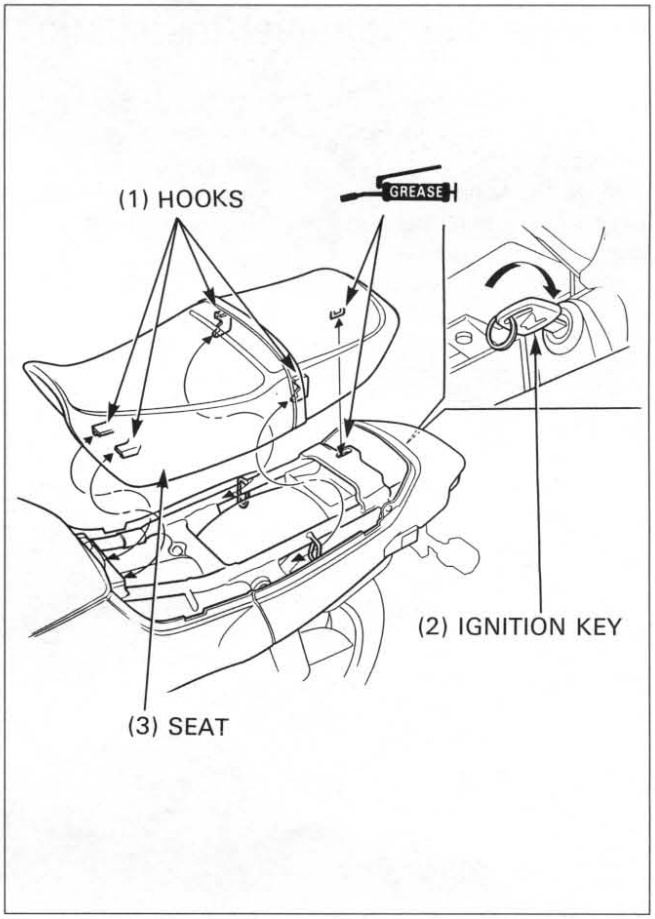
Installation

Apply grease to the hook of the seat.
Align the seat hooks with the frame hooks and push the seat forward.

Push the seat down until it locks.

CAUTION

- **Be careful not to pinch the wire harness between the seat and the frame.**



Side Cover Removal/Installation

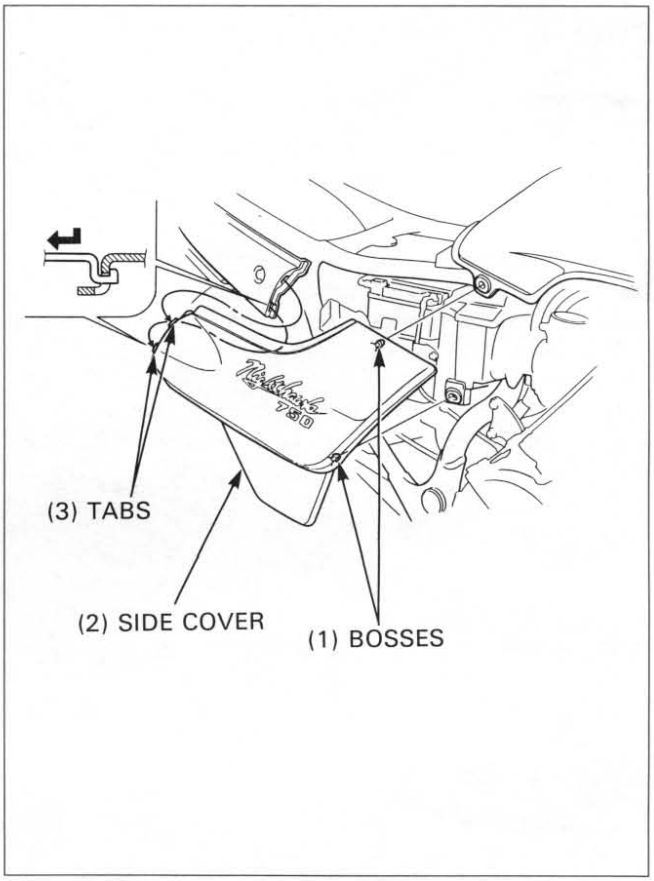
Remove the seat (see above).

Release the cover front bosses from the grommets.
Release the tabs from the rear fairing grooves and remove the side cover.

CAUTION

- **Be careful not to damage the tabs and upper fairing grooves.**

Install the side cover in the reverse order of removal.



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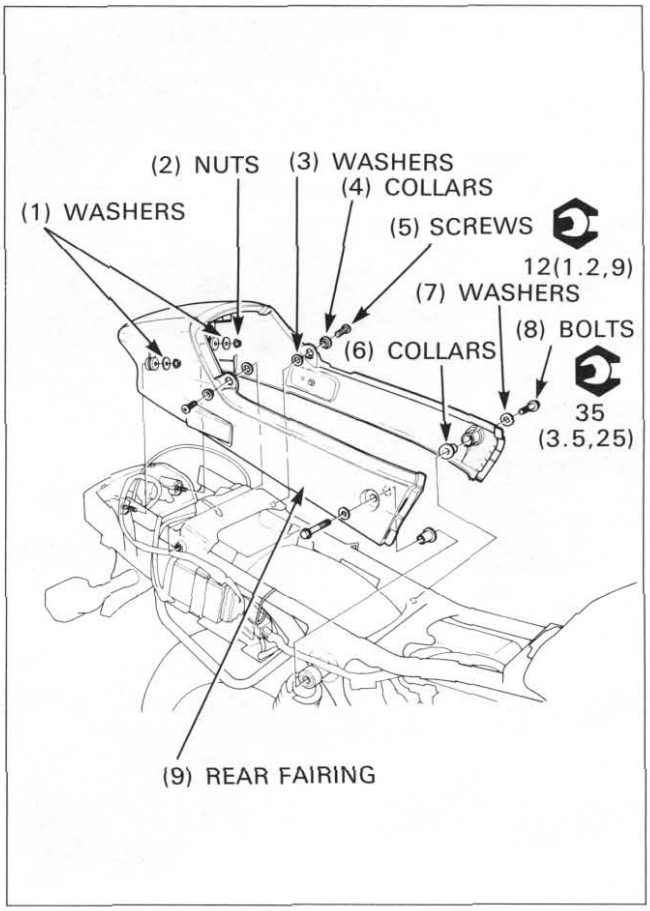
Rear Fairing Removal/Installation

Remove the seat (page 2-3).
Remove the shock absorber upper mounting bolts, collars and washers.
Remove the fairing mounting screws, collars and washers.
Raise the rear fairing and remove the taillight mounting nuts and washers.
Remove the rear fairing.

Install the rear fairing in the reverse order of removal.

Install the seat (page 2-3).



Fuel Tank Removal/Installation

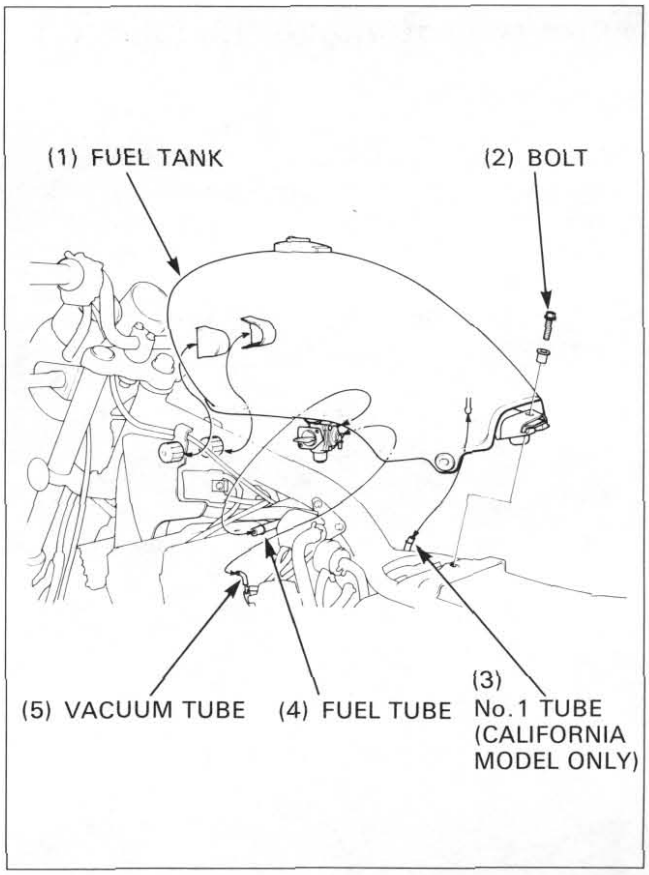
⚠WARNING

- **Gasoline is extremely flammable and is explosive under certain conditions.**

Remove the seat (page 2-3).
Turn the fuel valve OFF.
Remove the fuel tank mounting bolt and lift the fuel tank up.
Disconnect the tubes, and remove the fuel tank.

Install the fuel tank in the reverse order of removal.
After installation, turn the fuel valve ON and check the fuel line for leakage.

Install the seat (page 2-3).



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3. Maintenance

Service Information

- Refer to Common Service Manual for items not included in this manual.
- Refer to Specifications (Section 1) for maintenance data.

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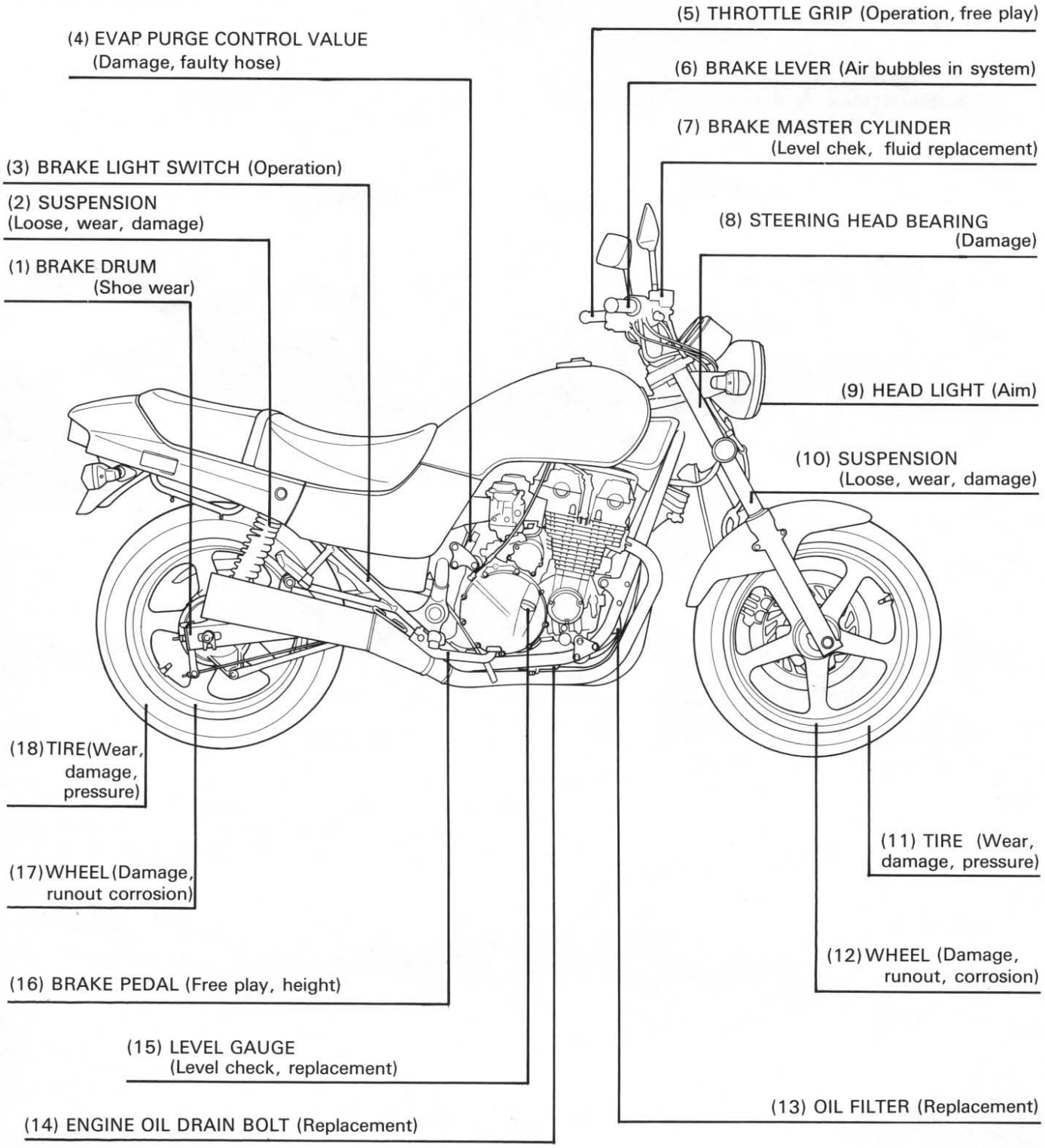
Service Access Guide

- The following shows the locations of the parts that must be removed for the maintenance items listed below. Refer to the Common Service Manual for items not included in this manual.
- Refer to section 2 (Frame/Body Panels/Exhaust System), for the parts that must be removed for service.
  For example: AIR CLEANER (Contamination, clogging, replacement): Parts
  • Side cover ———— The part required to be removed for service.



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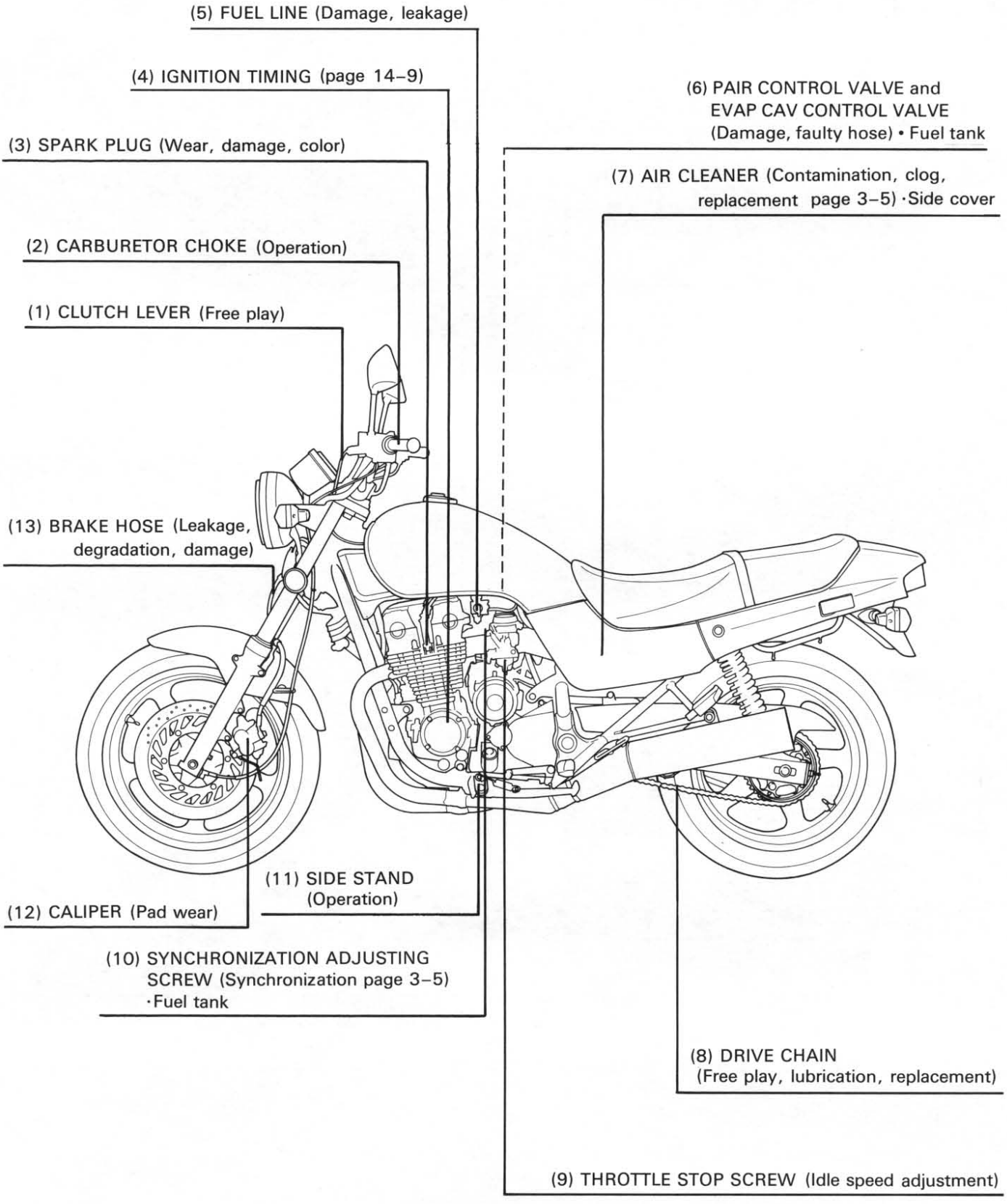

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Maintenance Schedule

Perform the PRE-RIDE INSPECTION in the Owner's Manual at each scheduled maintenance period.
I: Inspect and clean, Adjust, Lubricate, or Replace if necessary.
R: Replace, C: Clean, L: Lubricate, A: Adjust
The following items require some mechanical knowledge, Certain items (particularly those marked * and **) may require more technical information and tools. Consult your authorized Honda dealer.

		Item / Frequency	Note	Odometer Reading (Note 1)								Refer To Page
				× 1,000 mi	0.6	4	8	12	16	20	24	
				× 100 km	10	64	128	192	256	320	384	
EMISSION RELATED ITEMS	*	Fuel Line					I		I		I	Note 6
	*	Fuel Strainer Screen				C	C	C	C	C	C	Note 6
	*	Throttle Operation					I		I		I	Note 6
	*	Carburetor Choke					I		I		I	Note 6
		Air Cleaner	Note 2					R			R	3-5
		Crankcase Breather	Note 3			C	C	C	C	C	C	Note 6
		Spark Plug				I	R	I	R	I	R	Note 7
		Engine Oil			R	R	R	R	R	R	R	Note 7
		Engine Oil Filter			R		R		R		R	Note 6
	*	Carburetor Synchronization					I		I		I	3-5
	*	Carburetor Idle Speed			I	I	I	I	I	I	I	Note 7
	*	Secondary Air Supply System	Note 4				I		I		I	Note 6
	*	Evaporative Emission Control System	Note 4					I			I	Note 6
NON-EMISSION RELATED ITEMS		Drive Chain		Every 600mi (1,000 km) I , L								Note 6
		Battery				I	I	I	I	I	I	Note 6
		Brake Fluid	Note 5			I	I	R	I	I	R	Note 7
		Brake Shoe/Pad Wear				I	I	I	I	I	I	Note 6
		Brake System			I		I		I		I	Note 6
	*	Brake Light Switch					I		I		I	Note 6
	*	Headlight Aim					I		I		I	Note 6
		Clutch System			I	I	I	I	I	I	I	Note 6
		Side Stand					I		I		I	Note 6
	*	Suspension					I		I		I	Note 6
	*	Nuts, Bots, Fasteners			I		I		I		I	1-14
	**	Wheels/Tires					I		I		I	Note 6
	**	Steering Head Bearings			I		I		I		I	Note 6

* Should be serviced by an authorized Honda dealer, unless the owner has the proper tools and service data, and is mechanically qualified. Refer to the official Honda service Manual.
** In the interest of safety, we recommended these items be serviced only by an authorized Honda dealer.

Notes:
1. At higher odometer readings, repeat at the frequency interval established here.
2. Service more frequently when riding in unusually wet or dusty areas.
3. Service more frequently when riding in rain or at full throttle.
4. California model only.
5. Replace every 2 years, or at indicated odometer interval, whichever comes first. Replace requires mechanical skill.
6. Refer to the Common Service Manual.
7. Use the specifications in section one and refer to the Common Service Manual.

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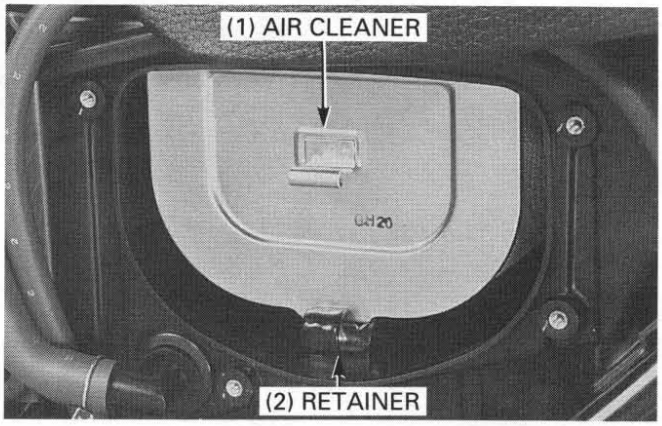
Air Cleaner

Remove the left side cover.
Remove the air cleaner housing cover.
Pull the air cleaner retainer out and remove the air cleaner.

Discard the air cleaner according to the maintenance schedule.

Install the air cleaner with the ← mark forward.
Install the retainer.

Install the removed parts in the reverse order of removal.

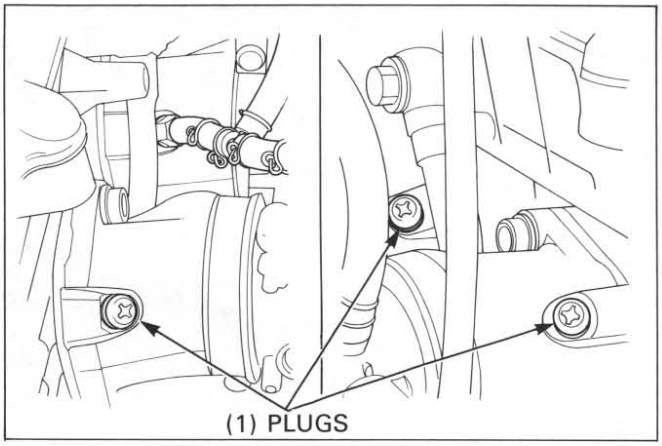


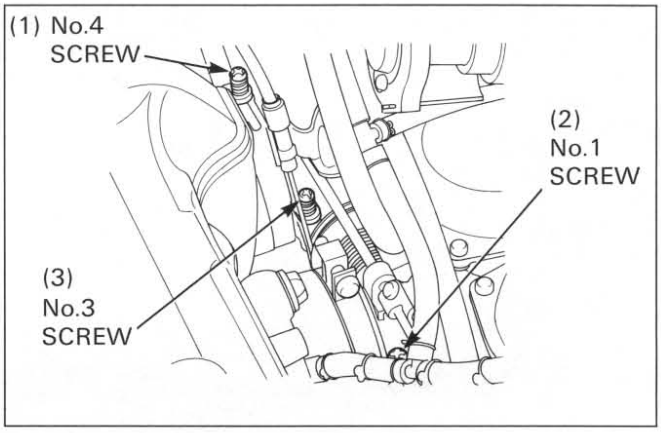
Carburetor Synchronization

NOTE

- For detailed instructions, refer to section 2 of the Common Service Manual. The information here only indicates locations of the plugs for the adapters and the synchronization adjusting screws.
- Before inspection, remove the fuel tank mounting bolts (page 2-4) and move the tank rearward without disconnecting the fuel tube.

Carburetor Vacuum Difference:
Within 30 mmHg (1.2 inHg)
Base Carburetor: No.2 Carburetor





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4. Lubrication System

Service Information

⚠ WARNING

- **If the engine must be running to do some work, make sure the area is well ventilated. Never run engine in an enclosed area. The exhaust contains poisonous carbon monoxide gas that can cause loss of consciousness and may lead to death. Run the engine in an open area or with an exhaust evacuation sysem in an enclosed area.**
- **Used engine oil may cause skin cancer if repeatedly left in contact with the skin for prolonged periods. Although this is unlikely unless you handle used oil on a daily basis, it is still advisable to thoroughly wash your hands with soap and water as soon as possible after handling used oil.**

- The oil pump can be serviced with the engine installed in the frame.
- For oil pressure check, refer to section 4 of the Common Service Manual; for the switch location, see page 16-2 of this manual.
- The service procedures in this section be performed after the engine oil is drained.
- When removing and installing the oil pump, use care not to allow dust or dirt to enter the engine.
- If any portion of the oil pump is worn beyond the specified service limits, replace the oil pump as an assembly.
- After the oil pump has been installed, check that there are no oil leaks and that oil pressure is correct.

Troubleshooting

Oil Level Low
- Oil consumption
- External oil leak
- Worn piston ring or incorrect piston ring installation
- Worn valve guide or seal

Low Or No Oil Pressure
- Clogged oil orifice
- Incorrect oil being used

No Oil Pressure
- Oil level to low
- Oil pump drive sprocket broken
- Oil pump damaged (pump shaft)
- Internal oil leaks

Low Oil Pressure
- Clogged oil strainer screen
- Oil pump worn or damaged
- Internal oil leak
- Incorrect oil being used
- Low oil level

High Oil Pressure
- Pressure relief valve stuck closed
- Plugged oil filter, gallery, or metering orifice
- Incorrect oil being used

Oil Pressure Warning Light Does Not Work Well
- Refer to section 25 of the Common Service Manual

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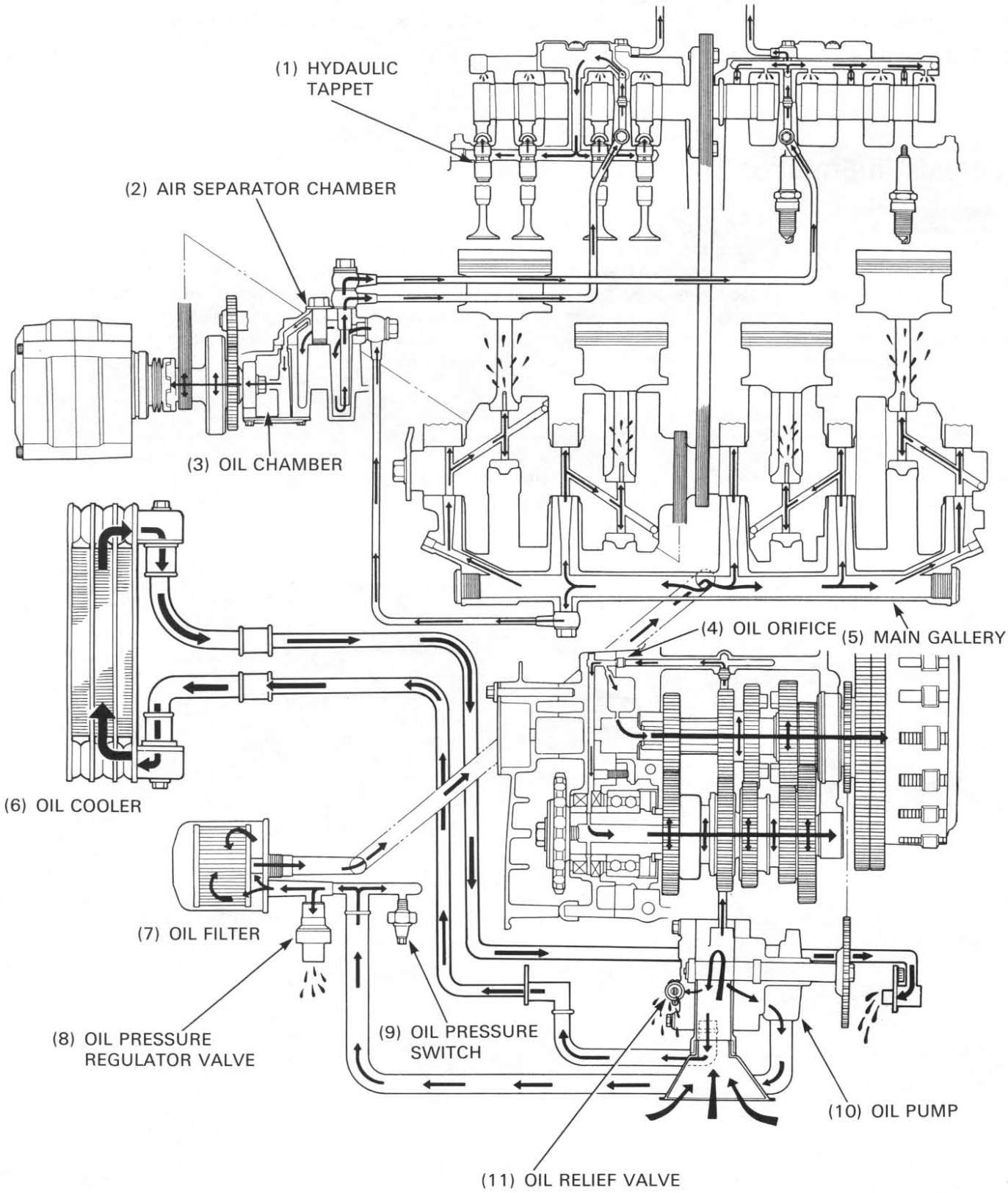
Lubrication System Diagram



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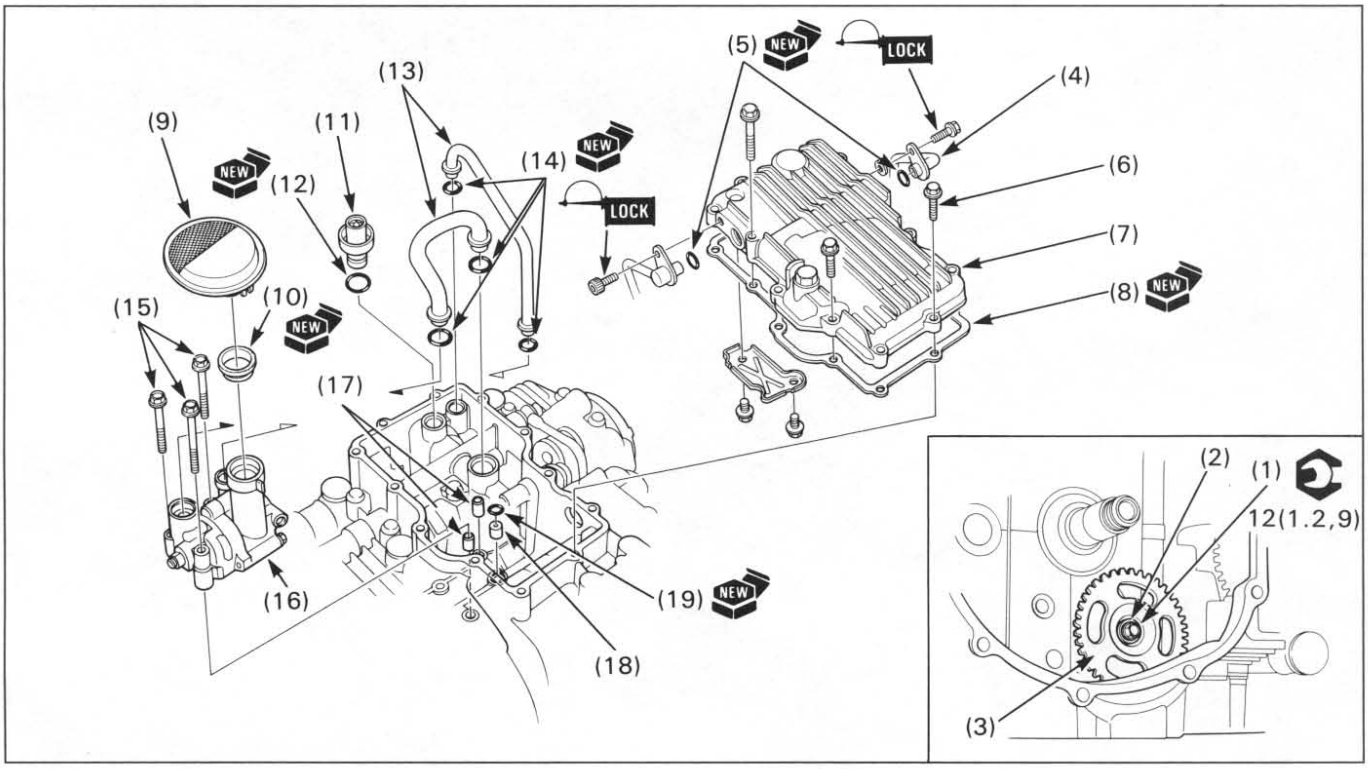
Oil Pump Removal/Installation



NOTE

- Use care to prevent dust and dirt from entering the engine.
- After installation, check that there are no oil leaks.

Requisite Service

- Engine oil draining/refill
- Clutch removal/installation (page 8-4)
- Exhaust system removal/installation (page 2-2)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Oil pump driven sprocket bolt	1	
(2)	Washer	1	
(3)	Oil pump driven sprocket	1	
(4)	Oil hose	2	
(5)	O-ring	2	
(6)	Oil pan bolt	12	
(7)	Oil pan	1	
(8)	Gasket	1	
(9)	Oil strainer	1	Clean with a non-flammable or high flash point solvent.
(10)	O-ring	1	
(11)	Pressure relief valve	1	
(12)	O-ring	1	
(13)	Oil pipe	2	
(14)	O-ring	4	
(15)	Oil pump mounting bolt	3	
(16)	Oil pump assembly	1	
(17)	Dowel pin	2	
(18)	Oil orifice	1	
(19)	O-ring	1	

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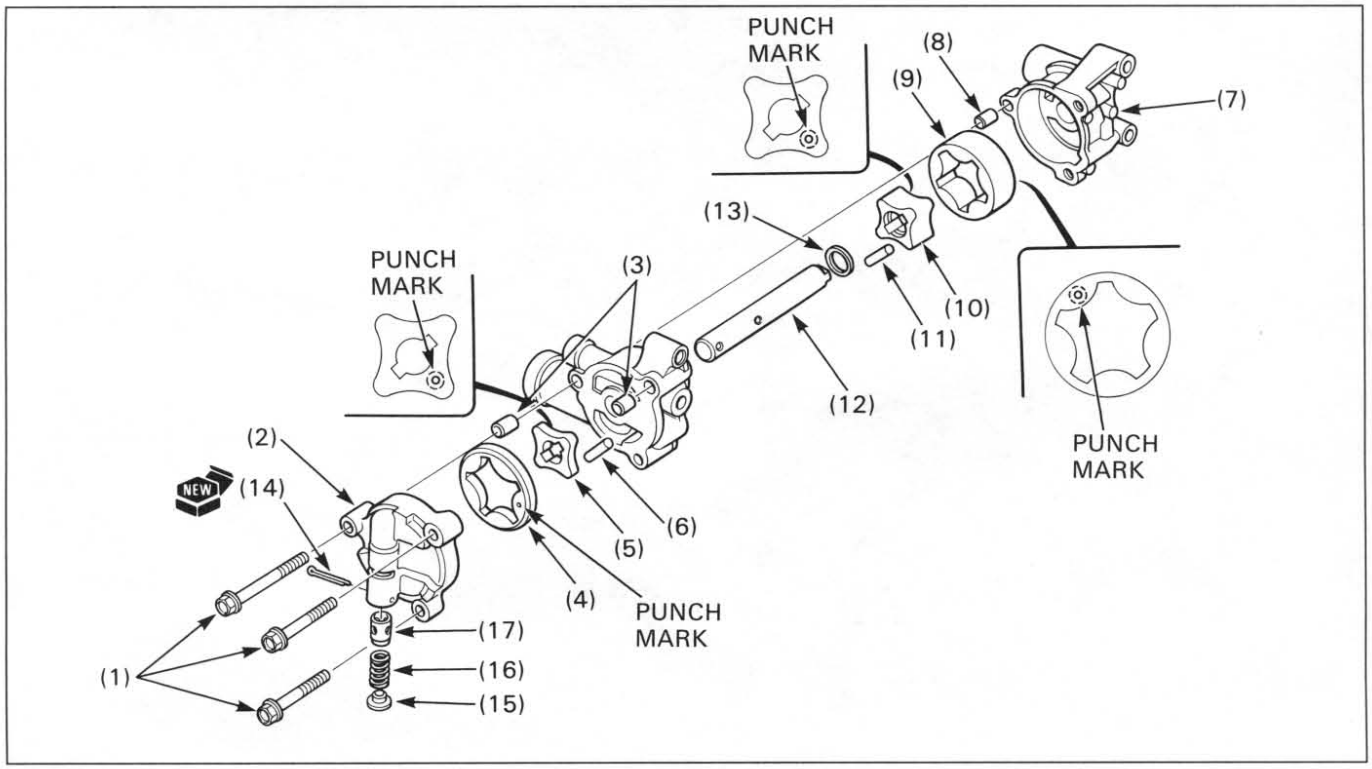
Oil Pump Disassembly/Assembly



NOTE

- If any portion of the oil pump is worn beyond the specified service limit, replace the oil pump as an assembly.
- Before assembling them, clean all disassembled parts thoroughly with clean engine oil.
- Refer to section 4 of the Common Service Manual for inspection information.
- Refer to page 1-6 for specifications.

Requisite Service

- Oil pump removal/installation (page 4-3)

	Procedure	Q'ty	Remarks
	Disassembly Order		Assembly is in the reverse order of disassembly.
(1)	Oil pump cover attaching bolt	3	
(2)	Oil pump cover	1	
(3)	Dowel pin	2	
(4)	Cooler pump outer rotor	1	Install with its punch mark facing the pump cover.
(5)	Cooler pump inner rotor	1	• Install aligning the cut out with the drive pin. • Install with its punch mark facing the pump body.
(6)	Drive pin	1	
(7)	Oil pump body	1	
(8)	Dowel pin	1	
(9)	Feed pump outer rotor	1	Install with its punch mark facing the pump body.
(10)	Feed pump inner rotor	1	• Install aligning the cut out with the drive pin. • Install with its punch mark facing the pump body.
(11)	Drive pin	1	
(12)	Pump shaft	1	
(13)	Washer	1	
(14)	Cotter pin	1	
(15)	Spring seat	1	
(16)	Spring	1	
(17)	Relief valve	1	

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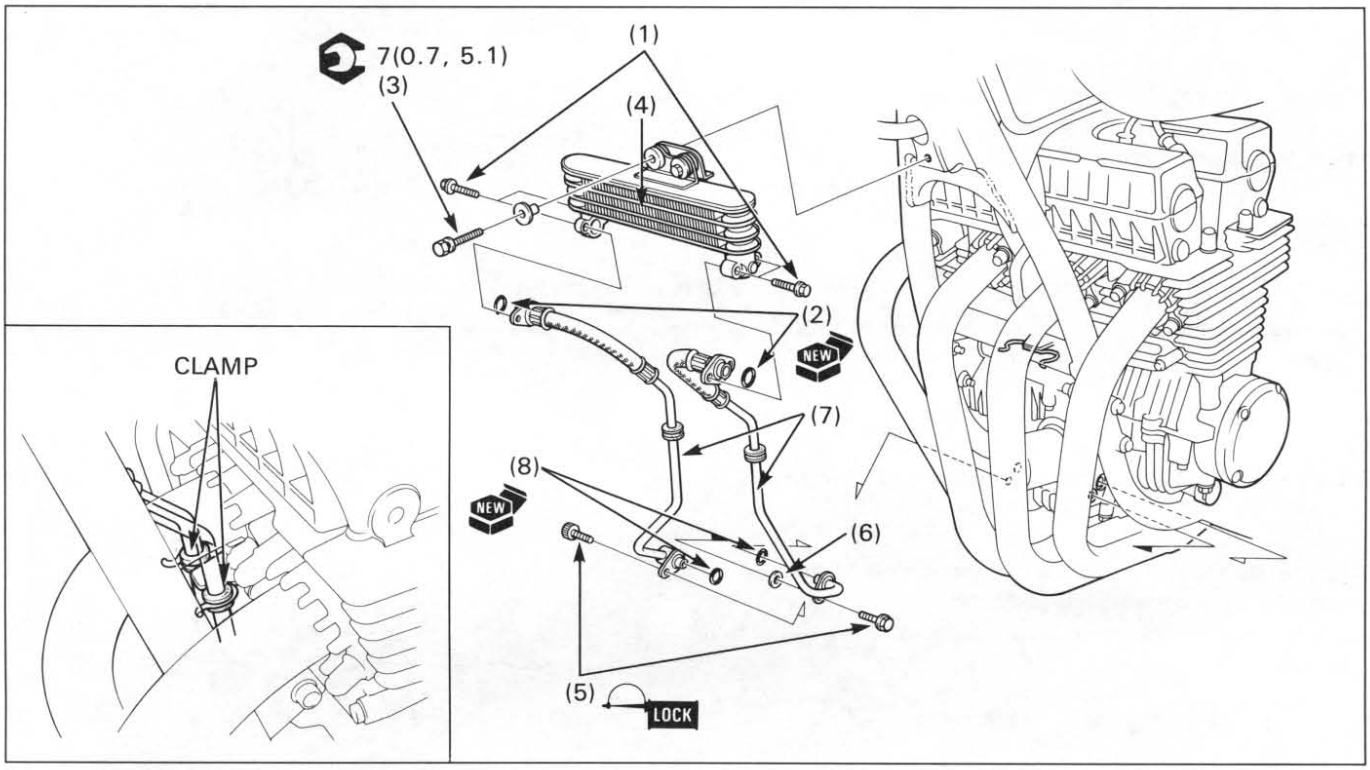
Oil Cooler Removal/Installation



NOTE

- Use care to prevent dust and dirt from entering the engine.
- After installation, check that there are no oil leaks.

Requisite Service

- Engine oil draining/refill

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Oil hose joint bolt (upper)	4	
(2)	O-ring	2	
(3)	Oil cooler mounting bolt	1	
(4)	Oil cooler	1	
(5)	Oil hose joint bolt (lower)	2	
(6)	Washer	1	
(7)	Oil hose	2	Be careful not to bend the hose.
(8)	O-ring	2	

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Oil Pressure Check

Warm the engine up to normal operating temperature (approximately 80°C/176°F).
Stop the engine.
Place the motorcycle on its side stand.
Remove the right sealing bolt and connect an oil pressure gauge to the plug hole with an attachment.
Check the oil level, with motorcycle in an upright position.
Start the engine and check the oil pressure at 6,000 rpm.

S. TOOL

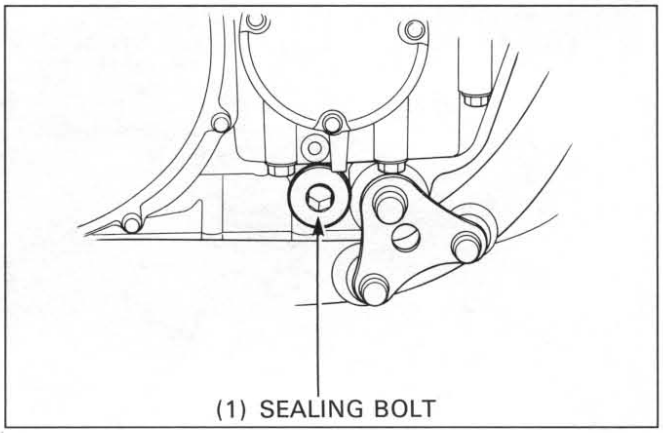
Oil pressure gauge 07506-3000000
Oil pressure gauge attachment 07510-MJ10100
or
equivalent commercially available in U.S.A.

OIL PRESSURE: 630 kPa (6.3 kg/cm², 90 psi) at (80°C/176°F) 6,000 rpm

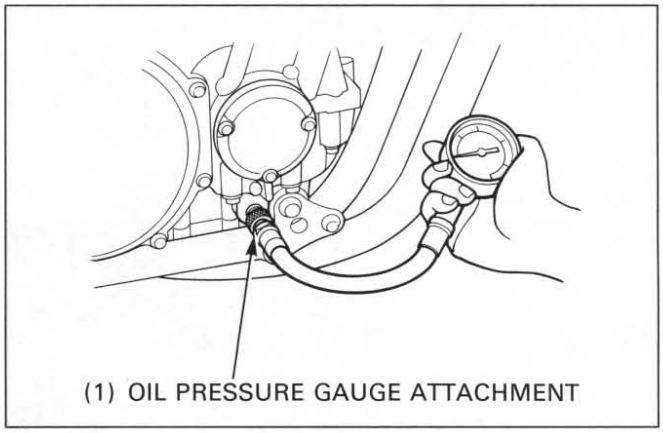
Stop the engine and place the motorcycle on its side stand.
Remove the pressure gauge and attachment.
Apply sealant to the sealing bolt threads and install the bolt with new sealing washer.

Torque: 30N·m (3.0 kg-m, 22ft-lb)

Start the engine.
Check that the oil pressure warning indicator goes out after one or two seconds.
If the pressure warning indicator stays on, stop the engine immediately and determine the cause.



(1) SEALING BOLT



(1) OIL PRESSURE GAUGE ATTACHMENT

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5. Fuel System

Service Information

⚠WARNING

- **Gasoline is extremely flammable and is explosive under certain conditions. KEEP OUT OF REACH OF CHILDREN.**
- **Bending or twisting the control cables will impair smooth operation and could couse the cables to stick or bind, resulting in loss of vehicle control.**

CAUTION

- **Be sure to remove the carburetor diaphragms before cleaning air and fuel passages with compressed air.**

- Work in a well ventilated area. Smoking or allowing flames or sparks in the work area or where gasoline is stored can cause a fire or explosion.
- Refer to section 2 for fuel tank removal and installation.
- When disassembling fuel system parts, note the locations of the O-rings. Replace them with new ones on reassembly.
- Before removing the carburetors, place an approved gasoline container under the carburetor drain tube, loosen the drain bolts and drain the carburetors.
- After removing the carburetor, wrap the intake port of the engine with a shop towel or cover it with pieces of tape to prevent any foreign material from dropping into the engine.
- The vacuum chamber and float chamber can be serviced with the carburetors assembled.
- California Model Only:
  All hoses used in the evaporative emission control system are numbered for identification. When connecting one of these hoses, compare the hose number with the Vacuum Hose Routing Diagram Label, page 1-30

NOTE

- If the vehicle is to be stored for more than one month, drain the float bowls. Fuel left in the float bowls may cause clogged jets resulting in hard starting or poor driveability.

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Troubleshooting

Engine Won't Start
- Too much fuel getting to the engine
  —Air cleaner clogged
  —Flooded carburetor
- Intake air leak
- Fuel contaminated/deteriorated
- No fuel to carburetor
  —Fuel strainer clogged
  —Fuel tube clogged
  —Fuel valve stuck
  —Float level misadjusted
  —Fuel tank breather hole clogged

Lean Mixture
- Fuel jets clogged
- Float valve faulty
- Float level too low
- Fuel line restricted
- Carburetor air vent tube clogged
- Intake air leak
- Throttle valve faulty
- Vacuum piston faulty
- California Model Only: EVAP CAV control valve faulty

Rich Mixture
- Bystarter valve in ON position
- Float valve faulty
- Float level too high
- Air jets clogged
- Air cleaner contaminated
- Flooded carburetor

Engine Stalls, Hard To Start, Rough Idling
- Fuel line restricted
- Ignition malfunction
- Fuel mixture too lean/rich
- Fuel contaminated/deteriorated
- Intake air leak
- Idle speed misadjusted
- Float level misadjusted
- Fuel tank breather hole clogged
- Pilot screw misadjusted
- Slow circuit or bystarter circuit clogged
- Emission control system malfunction
  (California Model Only)
  —EVAP CAV control valve faulty
  —EVAP purge control valve
  —loose, disconnected or deteriorated hoses of the emission control system

Afterburn When Engine Braking Is Used
- Lean mixture in slow circuit
- Emission control system malfunction
  (California Model Only)
  —pulse secondary air supply system faulty
  —loose, disconnected or deteriorated hoses of the emission control system

Afterburn Or Misfiring During Acceleration
- Ignition system faulty
- Fuel mixture too lean

Poor Performance (Driveability) And Poor Fuel Economy
- Fuel system clogged
- Ignition malfunction
- Emission control system malfunction
  (California Model Only)
  —EVAP CAV control valve faulty
  —loose, disconnected or deteriorated hoses of the emission control system

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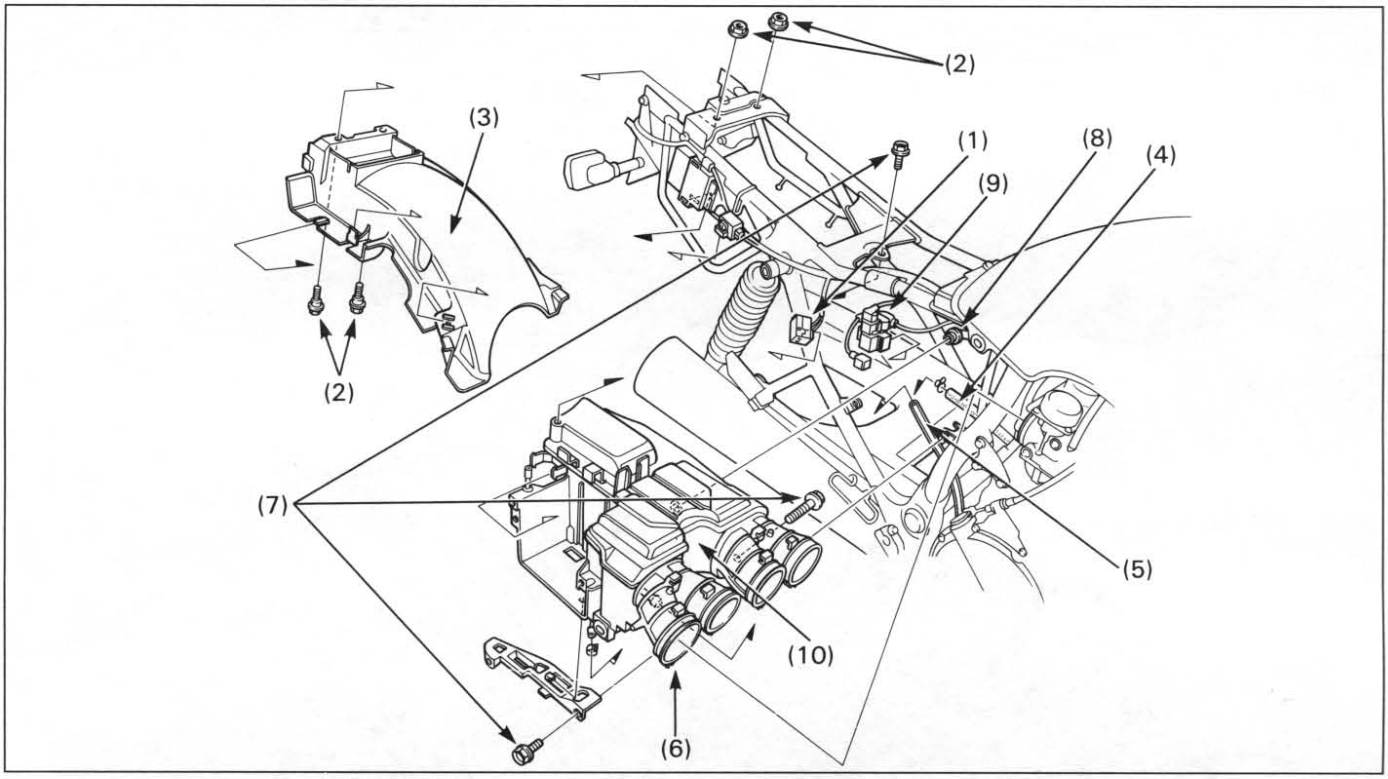
Air Cleaner Housing Removal/Installation



Requisite Service

- Rear fairing removal/installation (page 2-4)
- Battery removal/installation (page 13-4)
- Rear wheel removal/installation (page 11-2)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Fuse box	1	
(2)	Rear fender B mounting nut/bolt	2	
(3)	Rear fender B	1	
(4)	Crankcase breather tube	1	
(5)	Crankcase breather drain tube	1	
(6)	Connecting tube band screw	4	Loosen only.
(7)	Air cleaner case mounting bolt	3	
(8)	Canister-to-air cleaner housing tube	1	California model only
(9)	Starter relay switch	1	
(10)	Air cleaner housing assembly	1	Remove the air cleaner case from the right.

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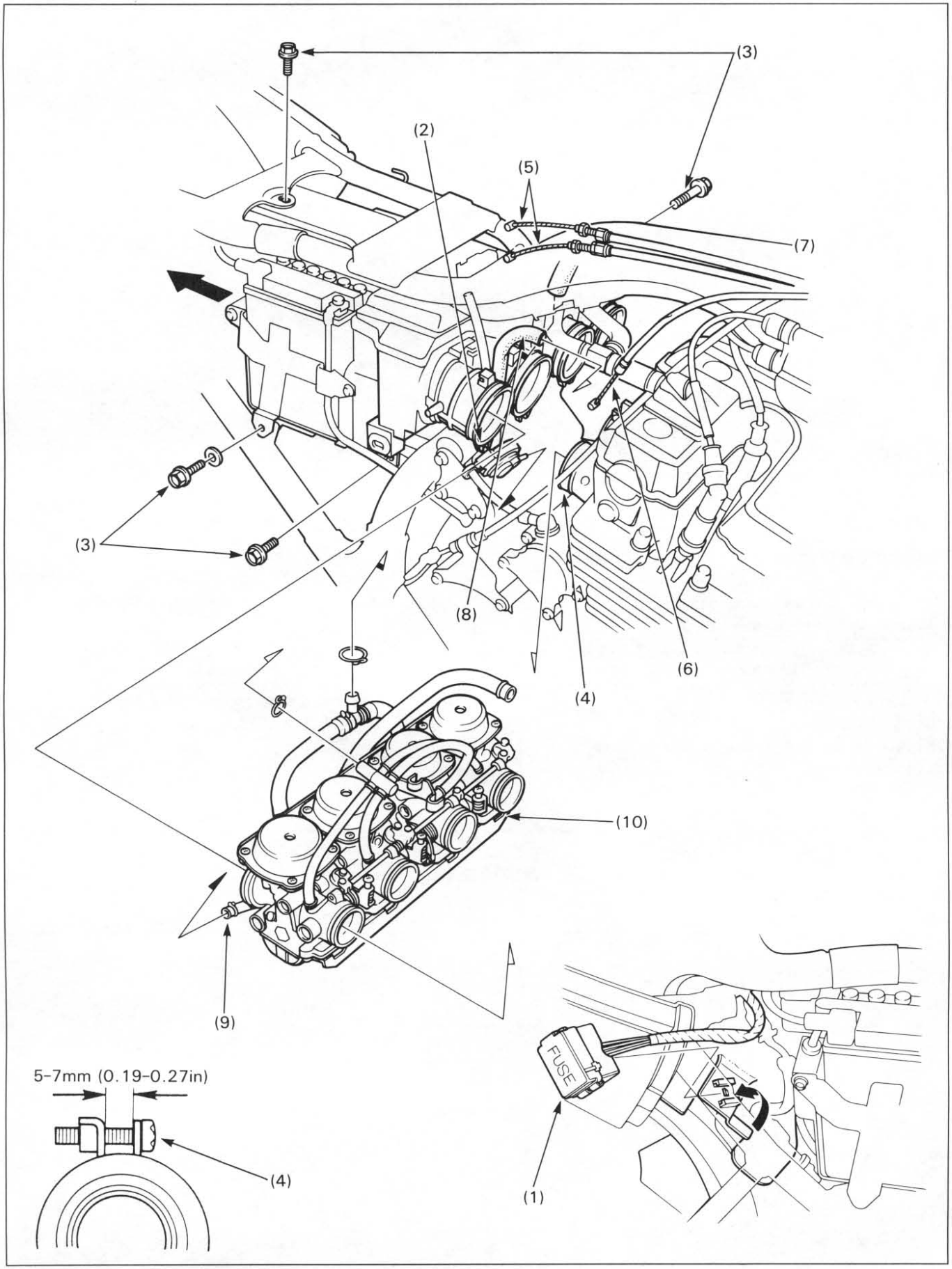
Carburetor Removal/Installation



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⚠ WARNING

- **Gasoline is extremely flammable and is explosive under certain conditions. KEEP OUT OF REACH OF CHILDREN.**

- Work in well ventilated area. Smoking or allowing flames or sparks in the working area or where gasoline is stored can cause a fire or explosion.

NOTE

- Before removal, turn the fuel valve OFF.

Requisite Service

- Fuel tank removal/installation (page 2-4)
- Carburetor draining

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Fuse box	1	Release the hooks in the rear fender B from the frame as shown, then move the rear fender B rearward.
(2)	Connecting tube band screw	4	Loosen only.
(3)	Air cleaner housing mounting bolt	4	Move the air cleaner housing rearward.
(4)	Insulator band screw	4	Loosen only.
(5)	Throttle cable	2	
(6)	Choke cable	1	
(7)	No. 6 vacuum tube (from the 3 way joint)	1	California Model Only
(8)	No. 5 tube (from the 5 way joint)	1	California Model Only
(9)	No. 11 tube (from the PCV)	1	California Model Only
(10)	Carburetor assembly	1	

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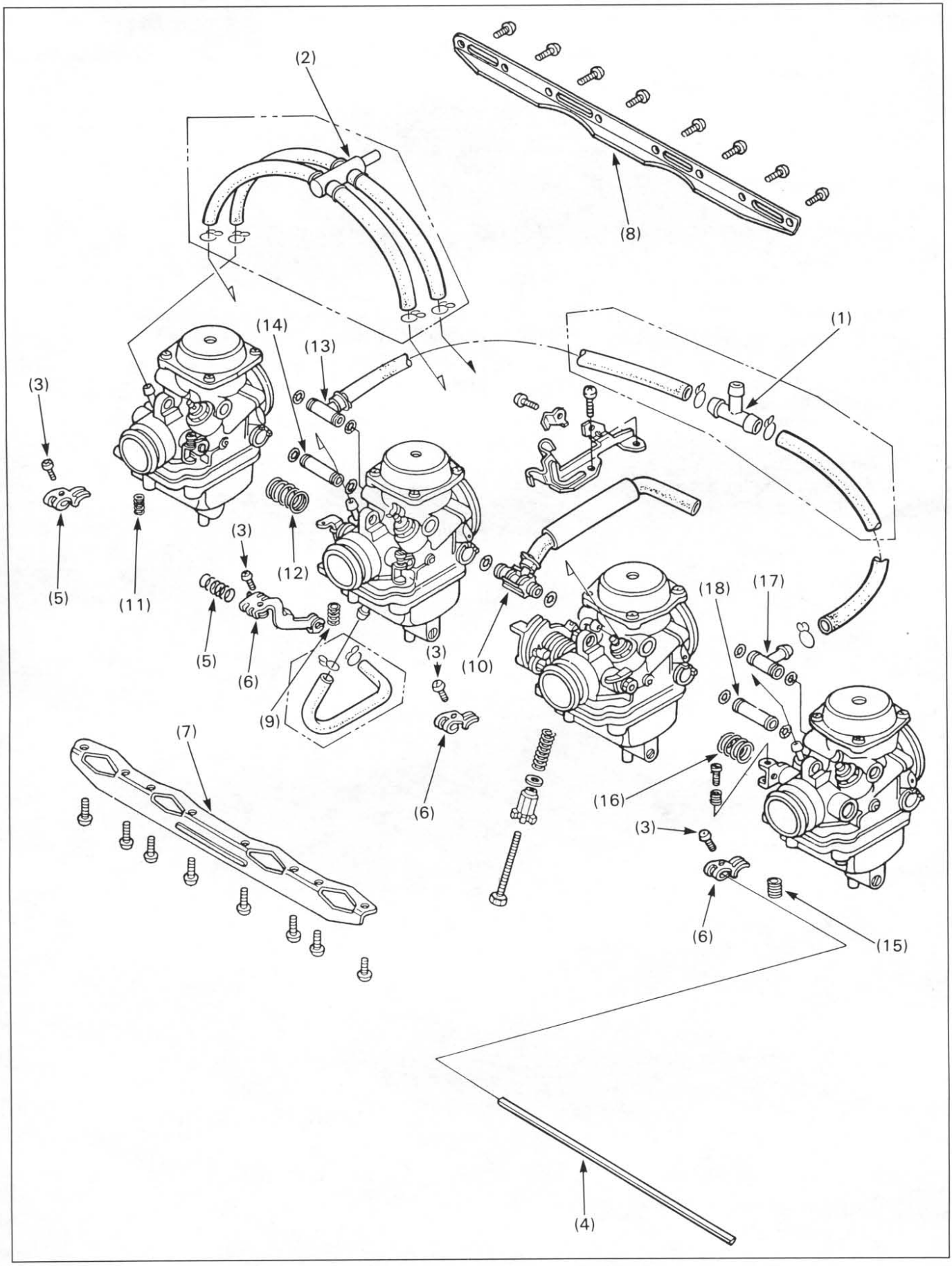
Carburetor Separation



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Requisite Service

- Carburetor removal/installation (page 5-4)

	Procedure	Q'ty	Remarks
	Separate carburetors 3/4 from carburetors 1/2		
(1)	Air joint pipe (3-way)	1	California Model Only
(2)	No. 5 tube/air joint pipe (5-way)	4/1	California Model Only
(3)	Starting enrichment valve arm screw	4	Loosen only.
(4)	Starting enrichment valve arm shaft	1	
(5)	Spring	1	
(6)	Starting enrichment valve arm	4	
(7)	Front bracket	1	
(8)	Rear bracket	1	
(9)	No. 3 carb. synchronization spring	1	
(10)	Fuel joint pipe (3-way)/O-ring	1/2	
	Separate No. 3 carb. from No. 4 carb.		
(11)	No. 4 carb. synchronization spring	1	
(12)	Thrust spring	1	
(13)	Air vent pipe/O-ring	1/2	
(14)	Fuel joint pipe (2-way)/O-ring	1/2	
	Separate No. 1 carb. from No. 2 carb.		
(15)	No. 1 carb. synchronization spring	1	
(16)	Thrust spring	1	
(17)	Air vent pipe/O-ring	1/2	
(18)	Fuel joint pipe (2-way)/O-ring	1/2	

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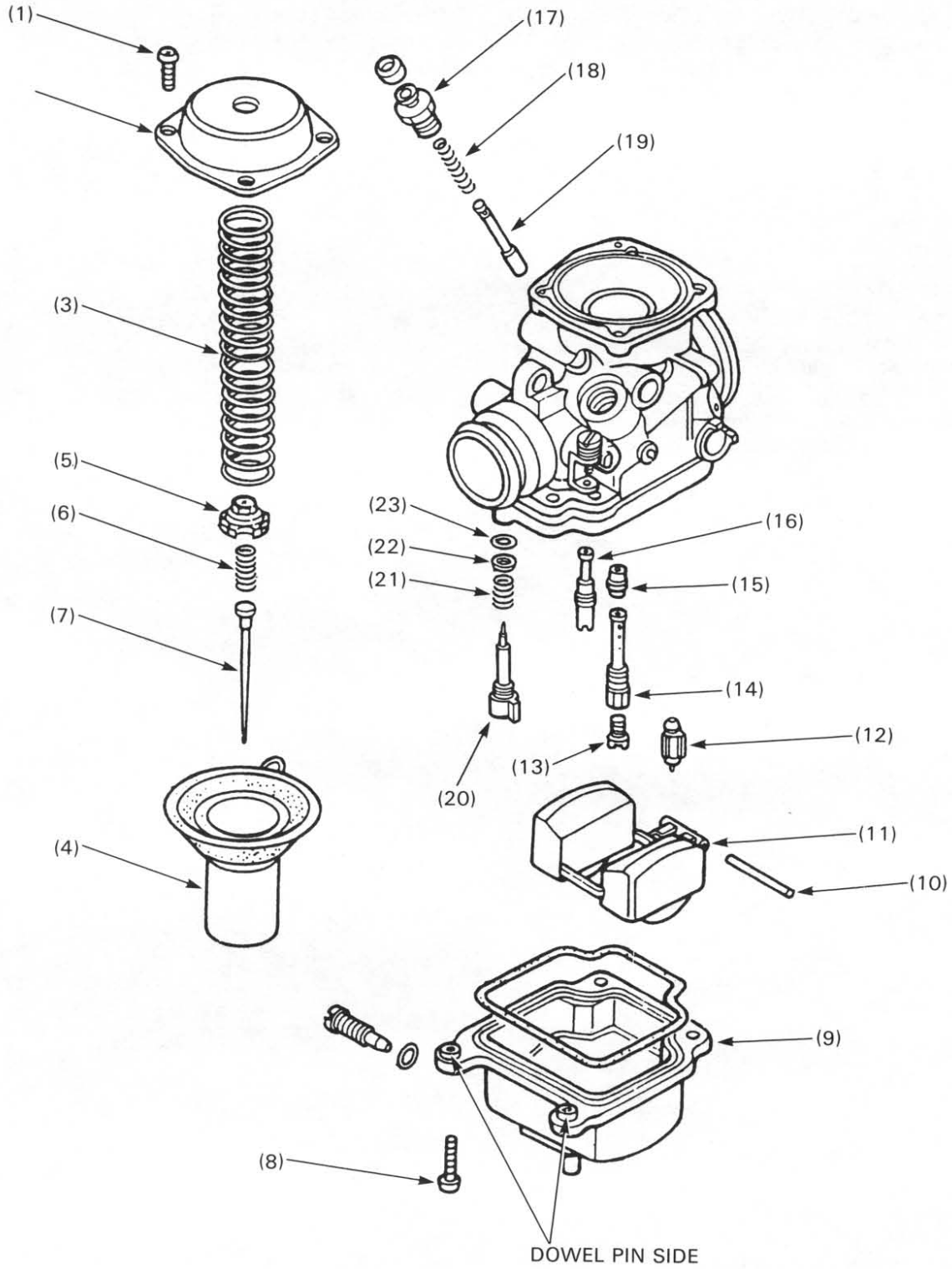
Carburetor Disassembly/Assembly



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NOTE

- The vacuum chamber and float chamber can be serviced with the carburetors assembled.
- The pilot screws are factory pre-set and should not be removed unless the carburetors are overhauled.
- Before disassembling the carburetors, turn each pilot screw in and carefully count the number of turns before it seats lightly. Make a note of this to use as a reference when reinstalling the screws. If new pilot screws are installed, turn each one out to the initial opening (page 1-6. Canadian model only).

Requisite Service

- Carburetor removal/installation (page 5-4)
- Carburetor separation (page 5-6)

	Procedure	Q'ty	Remarks
	Vacuum Chamber Disassmbly Order		Assembly is in the reverse order of disassembly.
(1)	Vacuum chamber cover screw	4	
(2)	Vacuum chamber cover	1	NOTE • At installation, hold the piston up to align the diaphragm and to avoid pinching the it with the cover.
(3)	Spring	1	
(4)	Diaphragm/vacuum piston	1	
(5)	Jet needle holder	1	
(6)	Spring	1	
(7)	Jet needle	1	
	Float Chamber Disassembly Order		Assembly is in the reverse order of disassembly.
(8)	Float chamber cover screw	4	At installation, first tighten the two screws on the dowel pin side.
(9)	Float chamber	1	
(10)	Float pin	1	
(11)	Float	1	For float level inspection, refer to section 8 of the Common Service Manual.
(12)	Float valve	1	
(13)	Main jet	1	
(14)	Needle jet holder	1	
(15)	Needle jet	1	
(16)	Slow jet	1	
	Starting Enrichment Valve Disassembly Order		Assembly is in the reverse order of disassembly.
(17)	Valve nut	1	
(18)	Spring	1	
(19)	Starting enrichment valve	1	
	Pilot Screw Disassembly Order		Assembly is in the reverse order of disassembly.
(20)	Pilot screw	1	
(21)	Spring	1	
(22)	Washer	1	
(23)	O-ring	1	

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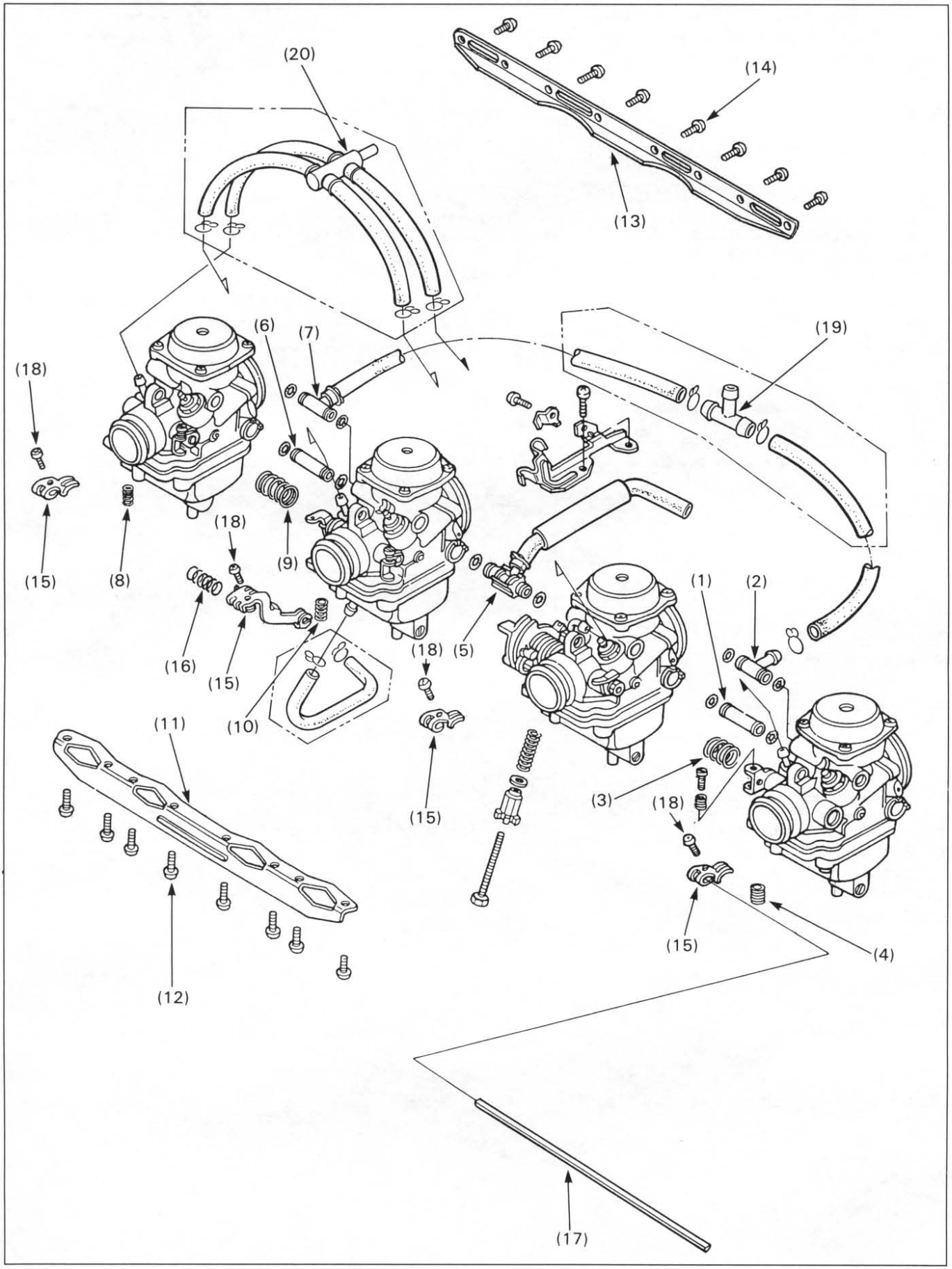
Carburetor Combination



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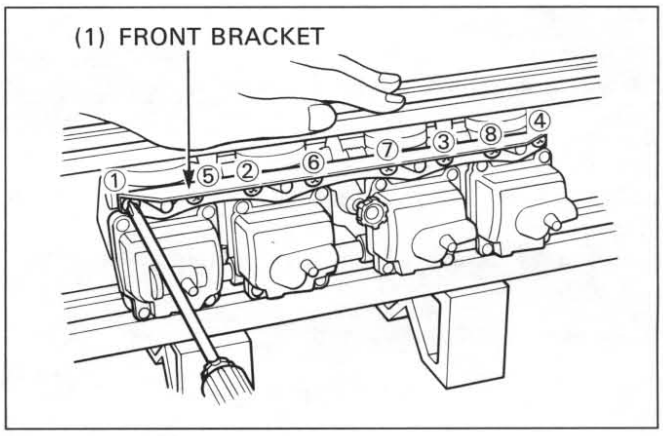
Requisite Service

- Carburetor assembly (page 5-8)

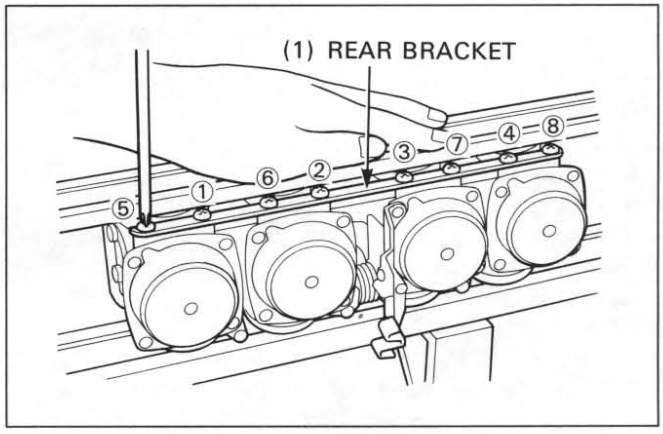
	Procedure	Q'ty	Remarks
	Assemble the No. 1 and No. 2 carburetors		No. 2 carburetor is the base carburetor.
(1)	Fuel joint pipe (2-way)/O-ring	1/2	
(2)	Air vent pipe/O-ring	1/2	
(3)	Thrust spring	1	
(4)	No. 1 carb. synchronization spring	1	
(5)	Fuel joint pipe (3-way)/O-ring	1/2	Install on No. 2 carburetor.
	Assemble the No. 3 and No. 4 carburetors		
(6)	Fuel joint pipe (2-way)/O-ring	1/2	
(7)	Air vent pipe/O-ring	1/2	
(8)	No. 4 carb. synchronization spring	1	
(9)	Thrust spring	1	
	Assemble the carburetor pairs:		
(10)	No. 3 carb. synchronization spring	1	
(11)	Front bracket	1	Installation (see below)
(12)	Front bracket screw	8	
(13)	Rear bracket	1	
(14)	Rear bracket screw	8	
(15)	Starting enrichment valve arm	4	
(16)	Spring	1	
(17)	Starting enrichment valve arm shaft	1	
(18)	Starting enrichment valve arm screw	4	
(19)	Air joint pipe (3-way)	1	California Model Only
(20)	No. 5 tube/air joint pipe (5-way)	4/1	California Model Only

Front/Rear Bracket Bracket Installation

Install the front bracket and screws loosely.
Place the carburetors on a flat surface with the front side facing up.
Press the carburetors together carefully and tighten the front bracket screws in the sequence shown in two or three steps to prevent carburetor misalignment.



Install the rear bracket and screws using the sequence shown in two or three steps.



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Pilot Screw Adjustment (U.S.A. Only)

Idle Drop Procedure

⚠ WARNING

- **If the engine must be running to do some work, make sure the area is well ventilated. Never run the engine in an enclosed area. The exhaust contains poisonous carbon monoxide gas that may cause loss of consciousness and lead to death.**

NOTE

- Make sure the carburetor synchronization is within specification before pilot screw adjustment.
- The pilot screws are factory pre-set and no adjustment is necessary unless the pilot screws are replaced.
- Use a tachometer with graduations of 50 rpm change.

1. Turn each pilot screw clockwise until it seats lightly, then back it out to the specification given. This is an initial setting prior to the final pilot screw adjustment.

S. TOOL

Pilot screw wrench — **07908–4730001 or equivalent commercially available in U.S.A. (Cal Van 466)**

Initial Opening: 2-5/8 turns out (49 states model)
: 2-3/8 turns out (California model)

CAUTION

- **Damage to the pilot screw seat will occur if the pilot screw is tightened against the seat.**

2. Warm up the engine to operating temperature. Stop and go riding for 10 minutes is sufficient.
3. Attach a tachometer according to its manufacturer's instructions.
4. Adjust the idle speed to the specified rpm with the throttle stop screw.

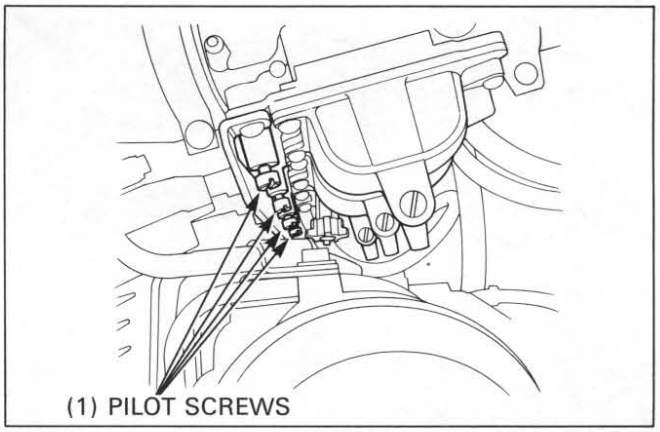
Idle Speed: 1,000±100 rpm

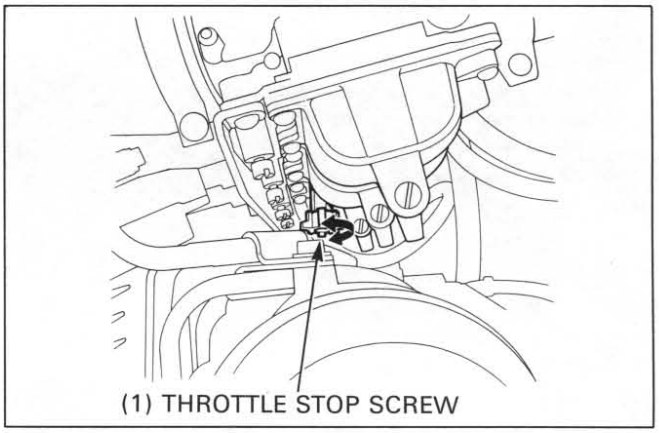
5. Turn all pilot screws 1/2 turn counterclockwise from the intial setting.

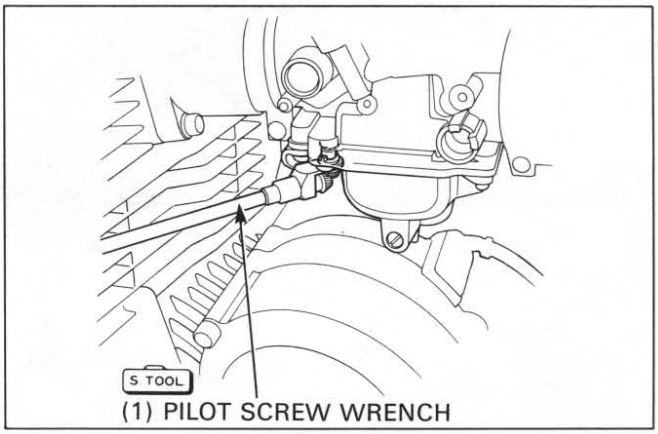
S. TOOL

Pilot screw wrench — **07908–4730001 or equivalent commercially available in U.S.A. (Cal Van 466)**

6. If the engine speed increases by 50 rpm or more, turn all pilot screws out by successive 1/2 turn increments until engine speed does not increase.
7. Adjust the idle speed with the throttle stop screw.
8. Turn the No.2 carburetor pilot screw in until the engine speed drops 50 rpm.
9. Then turn the No.2 carburetor pilot screw counterclockwise 1/2 turn from the position obtained in step 8.
10. Adjust the idle speed with the throttle stop screw.
11. Perform steps 8,9 and 10 for the No.1,3 and 4 carburetor pilot screws.


(1) PILOT SCREWS


(1) THROTTLE STOP SCREW



(1) PILOT SCREW WRENCH

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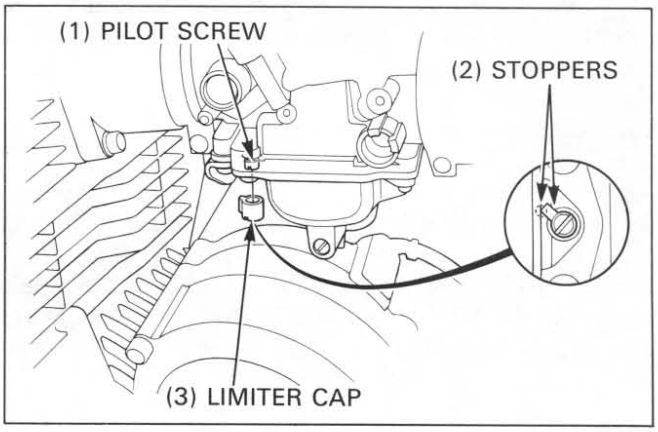
12. Apply Loctite 601 or eqivalent to the inside of the limiter caps. Place the caps over the pilot screws so that they can be turned clockwise only. This will prevent adjustment in the counterclockwise direction which richens the fuel mixture.

NOTE

- Be careful not to turn the pilot screw when installing the limiter cap.



High Altitude Adjustment (U.S.A. Only)

When the vehicle is to be operated continuously above 2,000 m (6,500 feet), the carburetor must be readjusted as follows to improve driveability and decrease exhaust emissions.

Warm up the engine to operating temperature. Stop and go riding for 10 minutes is sufficient.

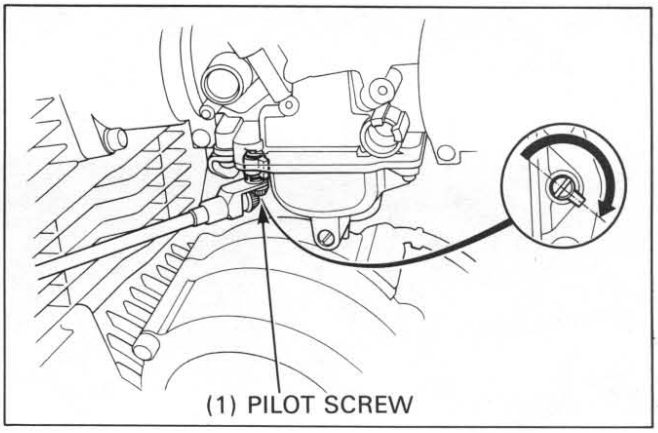
Turn each pilot screw to the specification below.

High Altitude Setting: 1/2-turn in

Adjust the idle speed to 1,000±100 rpm (California: 1,000±100 rpm) with the throttle stop screw.

S TOOL

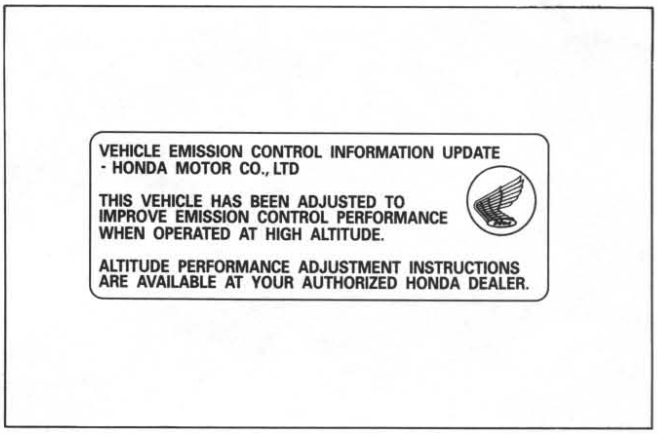
Pilot screw wrench — **07908–4730001 or equivalent commercially available in U.S.A. (Cal Van 466)**



NOTE

- This adjustment must be made at high altitude to ensure proper high altitude operation.

Attach a Vehicle Emission Control Information Update Label onto the rear fender under the seat as shown in the label position illustration.

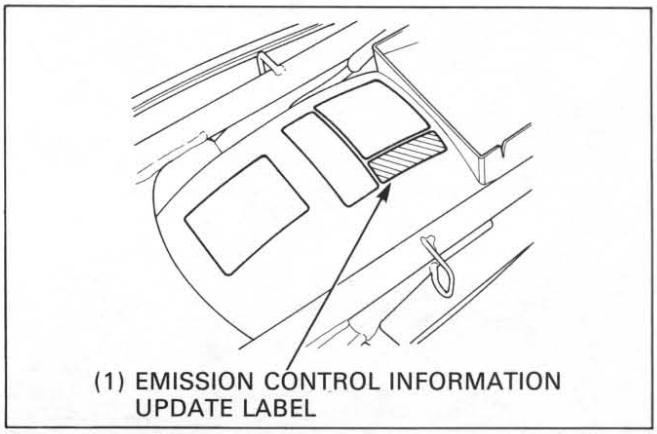


NOTE

- Do not attach the label to any part that can be easily removed from the vehicle.

⚠ WARNING

- **Sustained operation at an altitude lower than 5,000 feef (1,500 m) with the carburetor adjusted for high altitude may cause the engine to idle roughly and the engine may stall in traffic and may cause engine damage due to overheating.**



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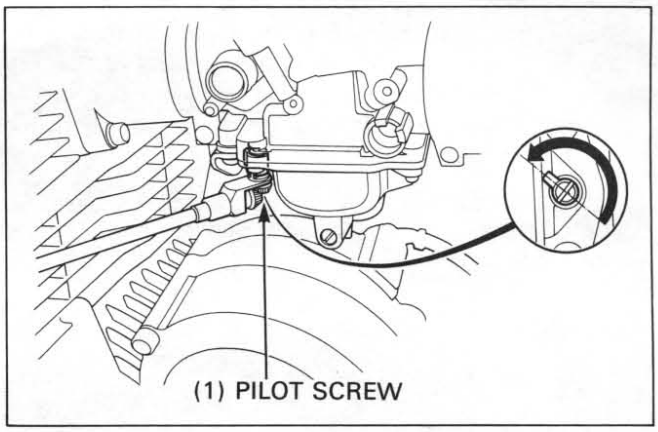
When the vehicle is to be operated continuously below 1,500 m (5,000 feet), turn each pilot screw to the specification below, its original position.

Low Altitude Setting: 1/2-turn out

Adjust the idle speed to 1,000±100 rpm (California: 1,000±100 rpm) with the throttle stop screw.
Be sure to make these adjustments at low altitude.
Remove the Vehicle Emission Control Information Update Label that is attached to the rear fender under the seat after adjusting for low altitude.



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6. Engine Removal/Installation

Service Information

- A floor jack or other adjustable support is required to support and maneuver the engine.
- The following components can be serviced with the engine installed in the frame:
  —Oil pump (Section 4)
  —Cylinder head/cylinder/piston (Section 7)
  —Clutch/gearshift linkage (Section 8)
  —Alternator (Section 13)

- The following components require engine removal for service:
  —Transmission/shift forks/shift drum (Section 9)
  —Crankshaft/connecting rod/starter clutch (Section 9)

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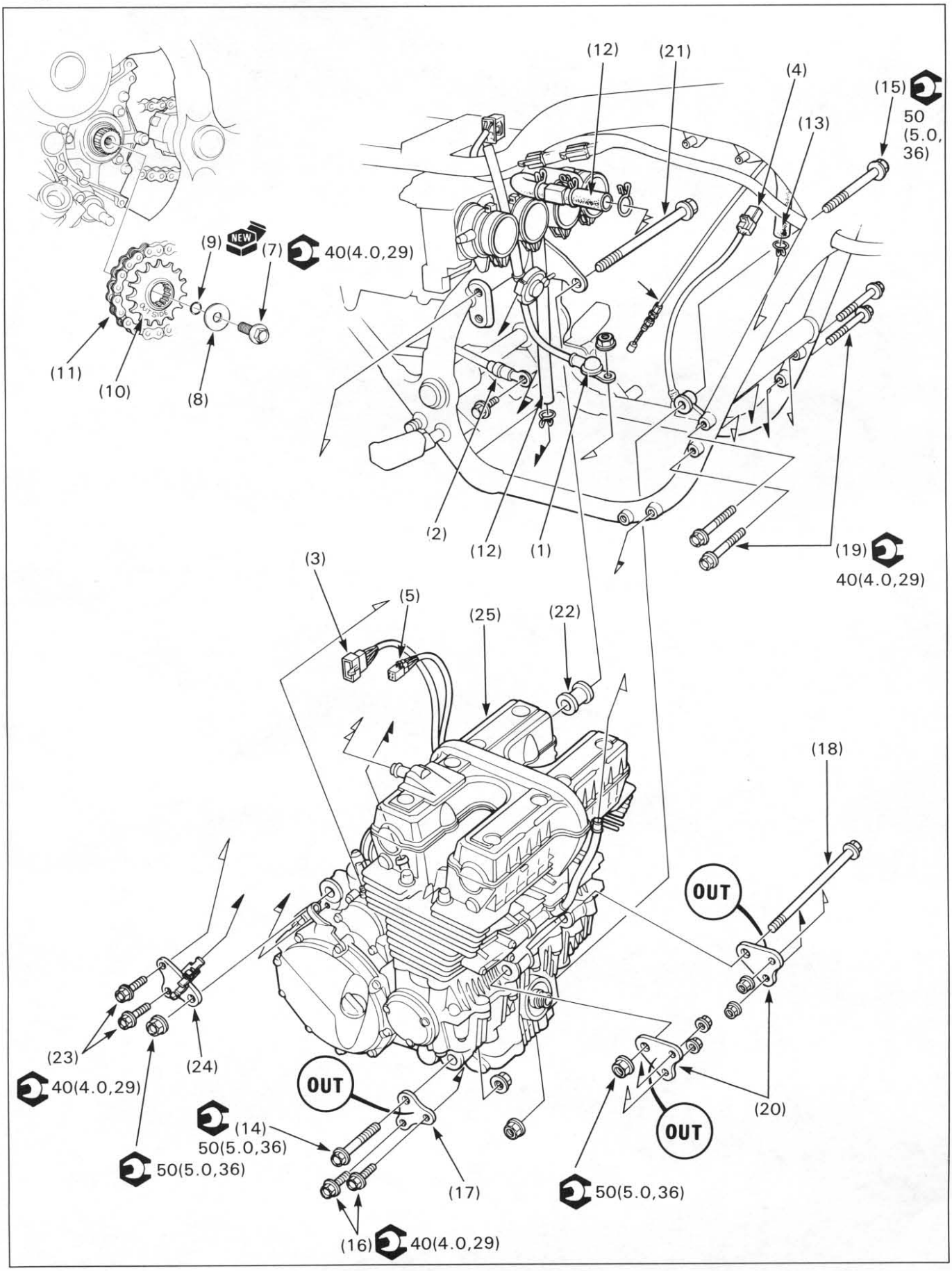
Engine Removal/Installation



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NOTE

- Support the motorcycle using a safety stand or a hoist.
- Turn the ignition switch OFF and disconnect the battery negative terminal.
- When removing the engine, be careful not to pinch the wire harnesses between the engine and frame.
- Note the direction of the engine mounting bolts.
- At installation, first install all engime mounting bolts and nuts loosely, then tighten the nuts to the specified torque.

Requisite Service

- Exhaust system removal/installation (page 2-2)
- Fuel tank removal/installation (page 2-4)
- Carburetor removal/installation (page 5-4)
- Engine oil draining/refill
- Oil filter removal/installation
- Drive sprocket cover removal/installation (page 8-9)
- Ignition coil removal/installation (page 14-6)
- Oil cooler removal/installation (page 4-5)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Starter motor cable	1	
(2)	Engine ground (−) cable	1	
(3)	Alternator wire connector	1	
(4)	Side stand switch connector	1	
(5)	Ignition pulse generator/oil pressure/ neutral switch connector	1	
(6)	Clutch cable	1	
(7)	Drive sprocket bolt	1	
(8)	Washer	1	
(9)	O-ring	1	
(10)	Drive sprocket	1	Loosen the drive chain.
(11)	Drive chain	1	
(12)	Breather tube	2	
(13)	No. 16 tube	1	California model only.
(14)	Right engine lower mounting bolt/nut	1/1	
(15)	Left engine lower mounting bolt/nut	1/1	
(16)	Right engine lower bracket bolt	2	
(17)	Right engine lower bracket	1	
(18)	Engine front mounting bolt/nut	1/1	
(19)	Engine front bracket bolt/nut	4/4	
(20)	Engine front bracket	2	
(21)	Engine rear mounting bolt/nut	1/1	
(22)	Engine rear mounting collar	1	
(23)	Engine rear bracket bolt	2	
(24)	Engine rear bracket	1	California model only: Remove the EVAP purge control valve.
(25)	Engine assembly	1	Move the engine out of the frame on the right. **CAUTION** • **Carefully align mounting points with the jack to prevent damage to mounting bolt threads, wire harnesses and cables.**

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MEMO

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7. Cylinder Head/Cylinder/Piston

Service Information

- Camshaft service can be done with the engine in the frame.
- The engine uses hydraulic tappets that eliminate manual valve adjustments. The hydraulic tappets have de-foaming chambers. Fill the chambers with clean engine oil before assembling.
- When adjusting the valve timing, do not turn the camshaft before installing camshaft holders and filling the de-foaming chambers with engine oil.
- Bleed air from the tappets thoroughly whenever the camshaft is removed (page 7-7).
- Camshaft lubricating oil is fed through oil passages in the cylinder head. Clean the oil passages before assembling the cylinder head.
- Clean all disassembled parts with clean,non-flammable or high flash-point solvent and dry them with compressed air before inspection.
- Lubricate the camshaft journals and cam lobes with a 50-50 solution of disulfide grease and engine oil before reassembly.
- When disassembling, mark and store the disassembled parts to ensure that they are reinstalled in their original locations.

Troubleshooting

- Engine top-end problems usually affect engine performance. These can be diagnosed by a compression or leak down test, or by tracing noises in the top-end with a sounding rod or stethoscope.
- If performance is poor at low speeds, check for white smoke in crankcase breather tube. If the tube is smoky, check for a seized piston ring.

Compression Too Low, Hard Starting Or Poor Performance At Low Speed

- Valves
  - —Faulty hydraulic tappet
  - —Burned or bent valves
  - —Incorrect valve timing
  - —Broken valve spring
  - —Uneven valve seating
- Cylinder head
  - —Leaking or damaged head gasket
  - —Warped or cracked cylinder head
- Cylinder, piston
  - —Leaking cylinder head gasket
  - —Loose spark plug
  - —Worn, stuck or broken piston ring
  - —Worn or damaged cylinder and piston

Compression Too High, Overheating Or Knocking

- Excessive carbon build-up in cylinder head or on top of piston

Rough Idle

- Low cylinder compression

Excessive Noise

- Hydraulic valve tappet system
  - —Low engine oil level
  - —Contaminated oil
  - —Low oil pressure
  - —Damaged hydraulic tappet
- Cylinder head
  - —Sticking valve or broken valve spring
  - —Damaged or worn camshaft
  - —Loose or worn cam chain
  - —Worn or damaged cam chain
  - —Worn or damaged cam chain tensioner
  - —Worn cam sprocket teeth
  - —Worn rocker arm and/or shaft
- Cylinder, piston
  - —Worn cylinder and piston
  - —Worn piston pin and piston pin hole

Excessive Smoke

- Cylinder head
  - —Worn valve stem or valve guide
  - —Damaged stem seal
- Cylinder, piston
  - —Worn cylinder, piston, or piston rings
  - —Improper installation of piston rings
  - —Scored or scratched piston or cylinder wall

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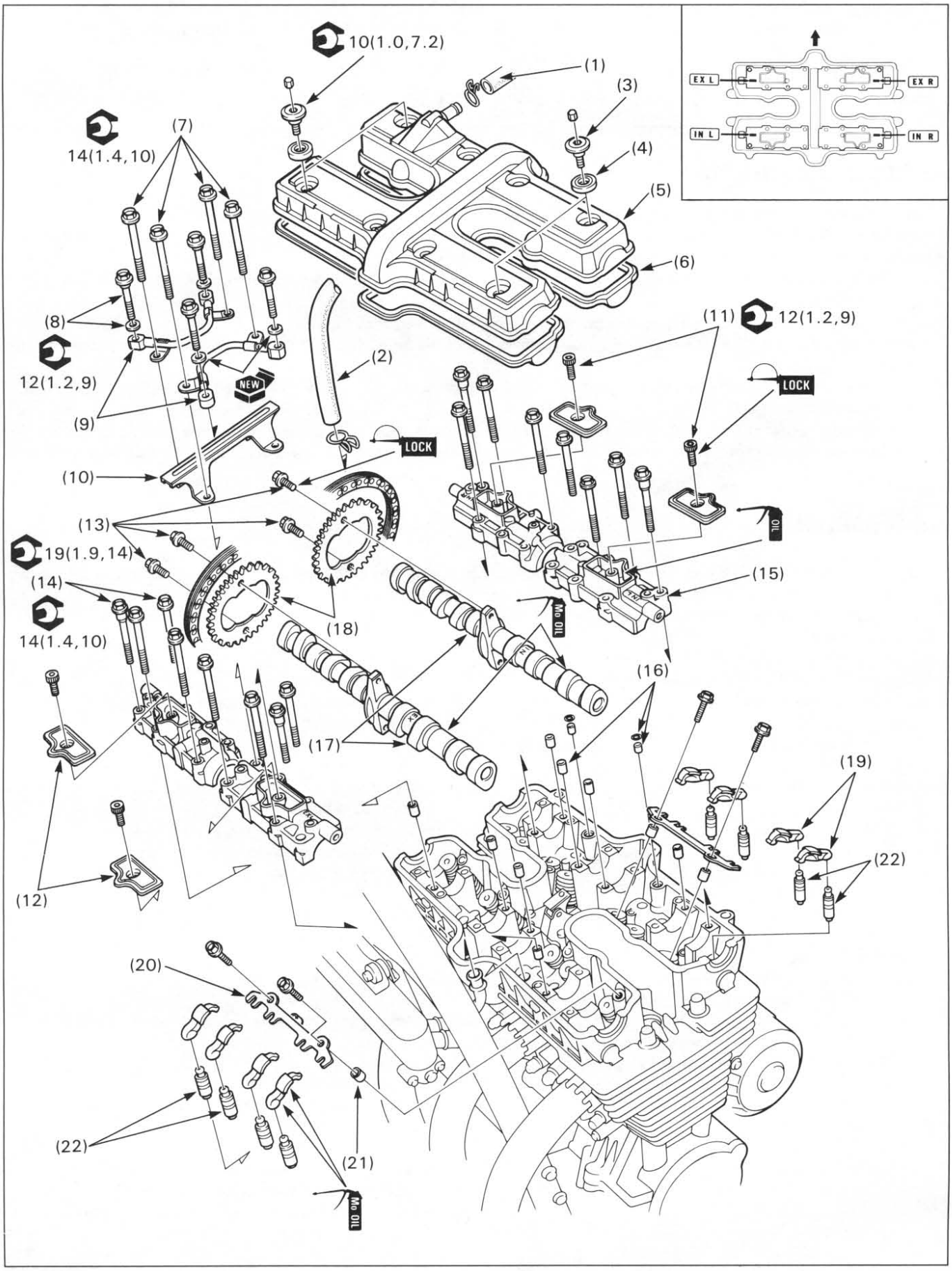
Camshaft Removal/Installation



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CAUTION

- **Do not turn the camshaft before filling the de-foaming chamber.**

NOTE

- Do not allow dust or dirt to enter the cylinder.

Requisite Service

- Fuel tank removal/installation (page 2-4)
- Ignition coil removal/installation (page14-6)

	Procedure	Q'ty	Remarks
	Camshaft Removal Order		Installation is in the reverse order of removal.
(1)	Crankcase breather tube	1	
(2)	No. 16 tube	1	
(3)	Cylinder head cover bolt	8	
(4)	Sealing washer	8	Install with the "UP" mark facing up.
(5)	Cylinder head cover	1	
(6)	Gasket	1	NOTE • To hold the gasket on the cylinder head cover, apply a small amount of adhesive to several points on the cover.
(7)	Cam chain guide bolt	4	
(8)	Oil pipe bolt/sealing washer	8/4	
(9)	Oil pipe	2	**CAUTION** • **During removal and installation, do not bend the oil pipe.**
(10)	Cam chain guide	1	
(11)	De-foaming chamber cover bolt	4	
(12)	De-foaming chamber cover	4	
(13)	Cam sprocket bolt	4	NOTE • Remove the two cam sprocket bolts first from both sprockets, turn the crankshaft clockwise, then remove the two other sprocket bolts.
(14)	Camshaft holder bolt	16	Camshaft removal (page 7-4)/Camshaft installation (page 7-5)
(15)	Camshaft holder	4	
(16)	Dowel pin/O-ring	10/2	
(17)	Camshaft	2	
(18)	Cam sprocket	2	
	Hydraulic Tappet Removal Order		Installation is in the reverse order of removal.
(19)	Rocker arm	16	
(20)	Rocker arm holder	4	
(21)	Dowel pin	8	
(22)	Hydraulic Tappet	16	Inspection (page 7-7), Installation (page 7-7)

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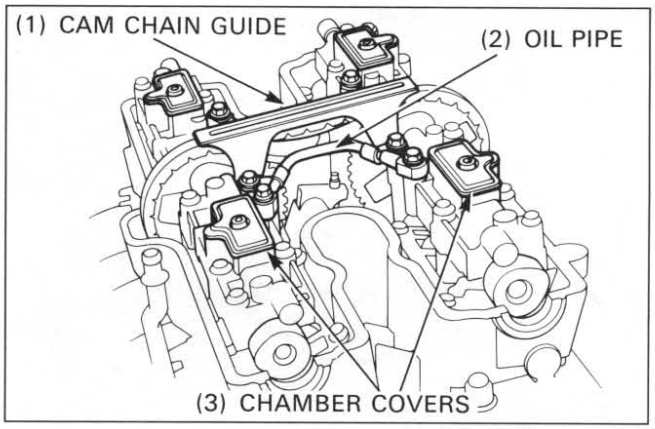
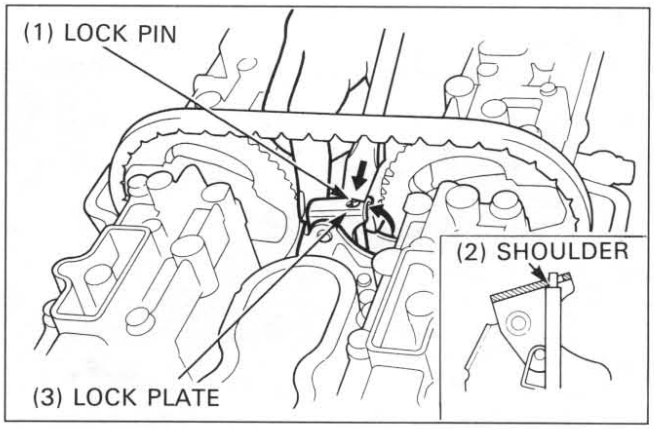
Camshaft Removal

Remove the cylinder head cover.
Remove the cam chain guide and oil pipes.
Remove the de-foaming chamber covers.

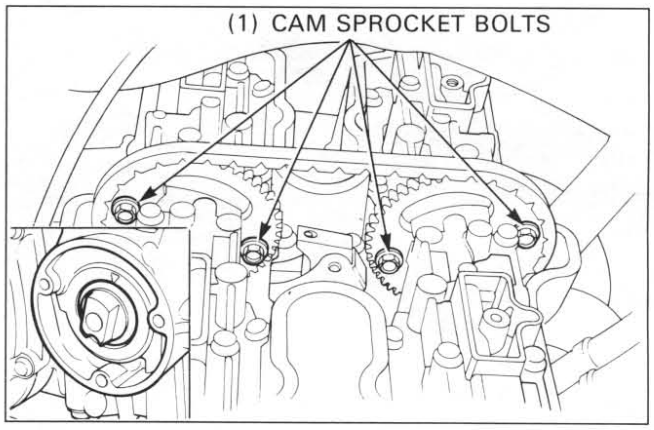


Loosen the cam chain by pushing the cam chain tensioner lock pin down and pulling the lock plate up until the lock plate resets on the lock pin shoulder as shown.



Remove the right crankcase cover.
Remove the two cam sprocket bolts first from both sprockets.
Rotate the crankshaft clockwise one turn (360°) and remove the two other sprocket bolts.
NOTE

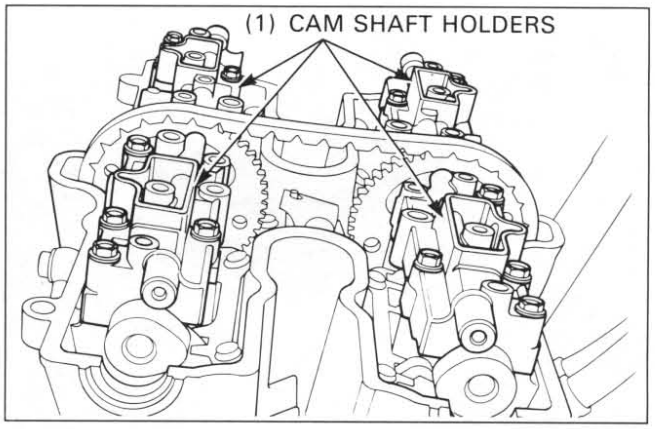
- Be careful not to let the sprocket bolts fall into the crankcase.



Remove the cam sprockets from camshaft flange with the cam chain.
Remove the camshaft holder bolts and holders.
NOTE

- Loosen the holder bolts in 2 or 3 steps in a crisscross pattern .

Remove the dowel pins and O-rings.
Remove the camshafts and cam sprockets.



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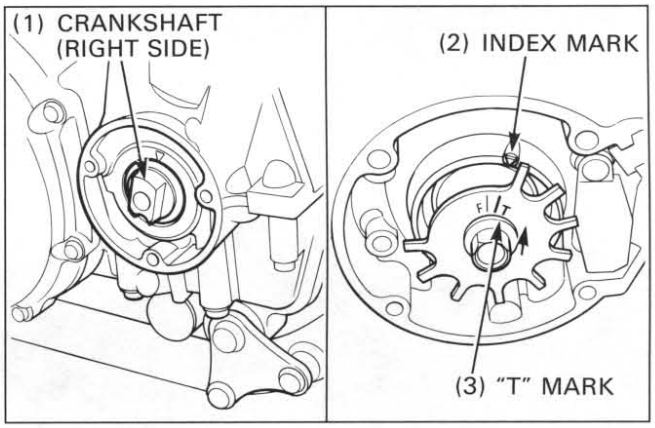
Camshaft Installation

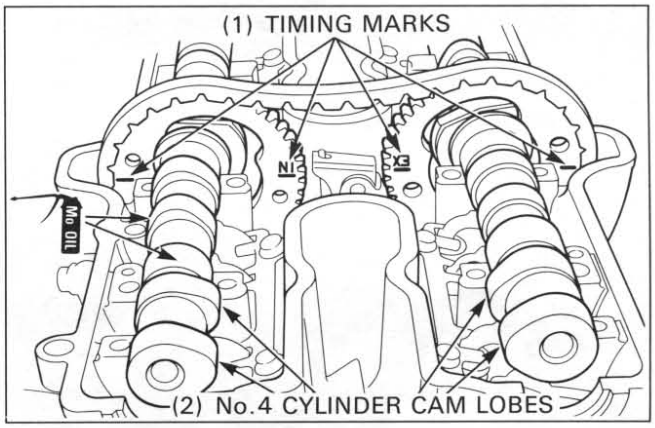
Turn the crankshaft clockwise and align the "T" mark on the pulse rotor with the index mark on the left crankcase.



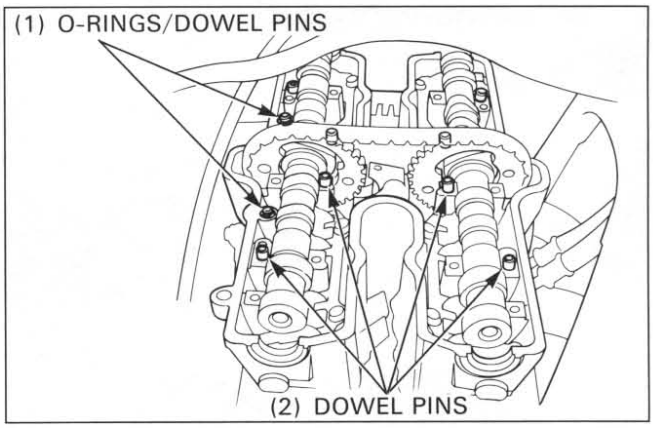
Coat the cylinder head journal surfaces of the camshaft with molybdenum disulfide oil.
Install the intake and exhaust camshafts and sprockets through the cam chain with the timing marks facing the right side.
Install the cam chain over the sprockets.
NOTE

- The camshafts are identified by marks:
  "IN" : Intake camshaft
  "EX": Exhaust camshaft

Rotate the camshafts so the No.4 cylinder cam lobes face each other.



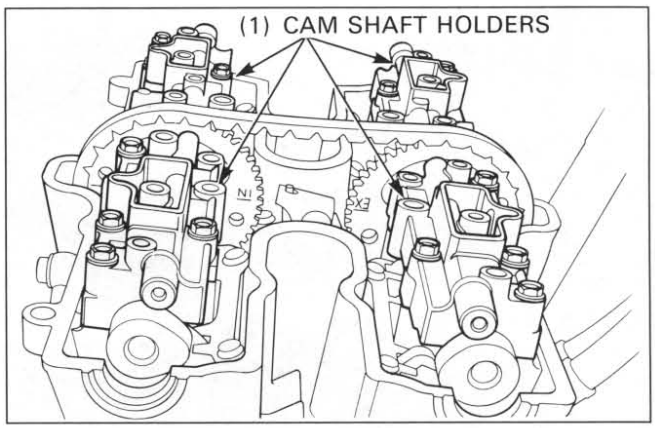
Install the two O-rings and dowel pins into the oil passage holes.
Install the eight dowel pins into the camshaft holder holes.



Install each camshaft holder in its original location.
NOTE

The holders are identified by marks:
"IN R": Intake right
"IN L": Intake left
"EX R": Exhaust right
"EX L": Exhaust left

Temporarily tighten the camshaft holder bolts.
Align cam sprocket timing marks with the top of the cylinder head.
Install the cam sprockets on the camshaft flange and re-check that the timing marks align with the top of the cylinder head.



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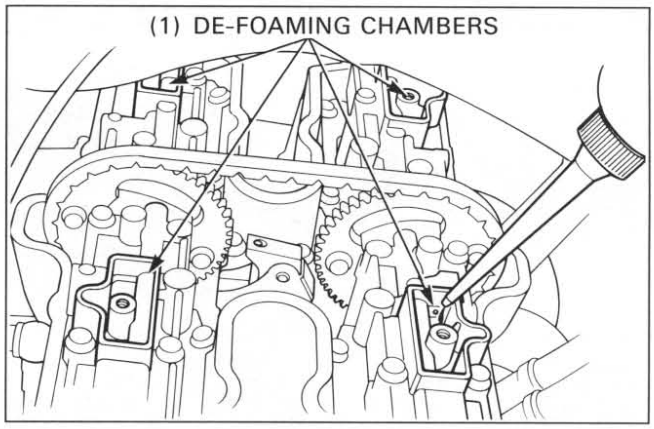
Fill the de-foaming chambers with clean engine oil.

CAUTION

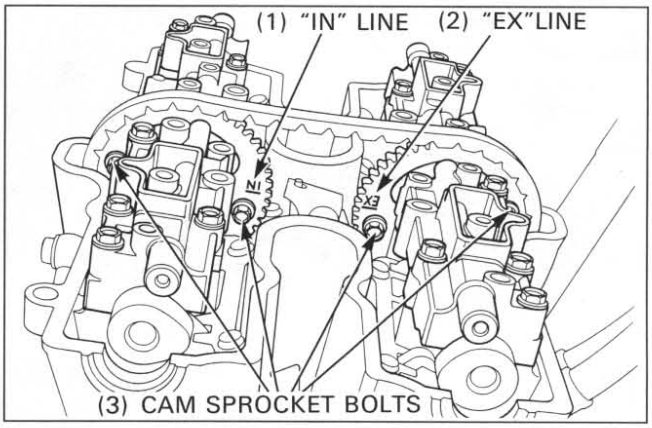
- **Do not turn the camshaft before filling the de-foaming chamber.**



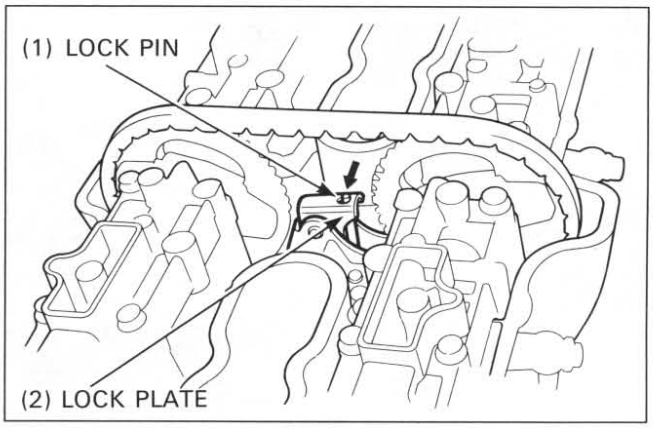
Apply a locking agent to the cam sprocket bolt threads, then install and tighten the cam sprocket bolts.

Torque: 19 N·m (1.9kg-m, 14 ft-lb)

Turn the crankshaft clockwise (viewed from the right side of the engine) and re-align the "T" mark on the pulse rotor with the index on the crankcase.
Make sure that the "IN" and "EX" lines on the cam sprockets align with the cylinder head.



Push the cam chain tensioner lock pin forward to release it from the lock plate.

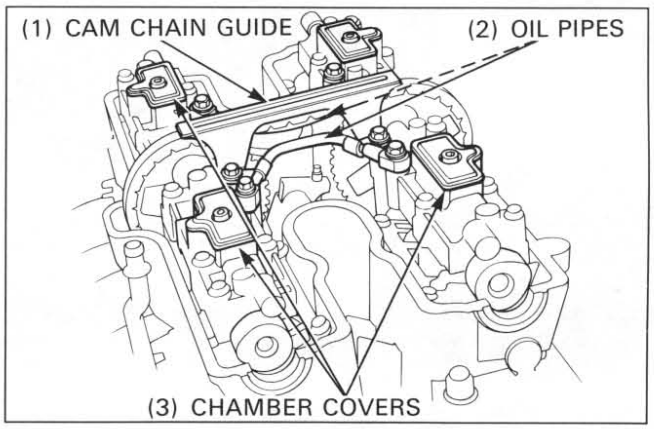


Install the cam chain guide.
Install the oil pipes with the oil bolts and sealing washers.

Tighten the camshaft holder bolts and the oil bolts to the specified torques in a crisscross pattern in 2 or 3 steps.

Torque:
Camshaft holder bolts: 14 N·m (1.4 kg-m, 10 ft-lb)
Oil bolts : 12 N·m (1.2 kg-m, 9 ft-lb)

Install the de-foaming chamber covers with the socket bolts.



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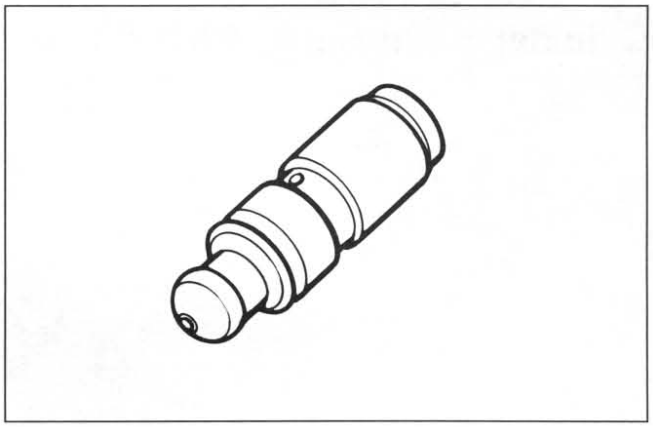
Hydraulic Tappet Inspection

Inspect the hydraulic tappets for wear, damage and clogged oil holes.



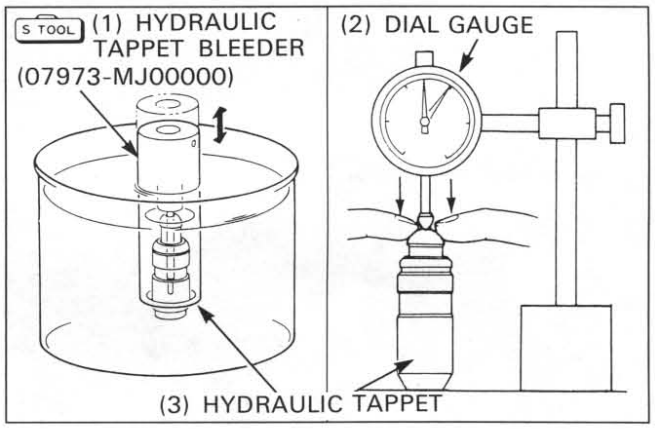
CAUTION

- **Never attempt to disassemble the tappets.**
- **Always use the special tool when bleeding the tappets. Use of wire can damage them.**

Measure the free length of each hydraulic tappet as follows: Attach the Hydraulic Tappet Bleeder to the tappet and compress and extend the tappet slowly in a jar filled with kerosene.

NOTE

- Keep the hydraulic tappet below the surface of the kerosene.
- Hold the tappet upright while compressing and extending it.



Continue priming the hydraulic tappet until the air bubbles stop and the tappet no longer collapses.

S TOOL

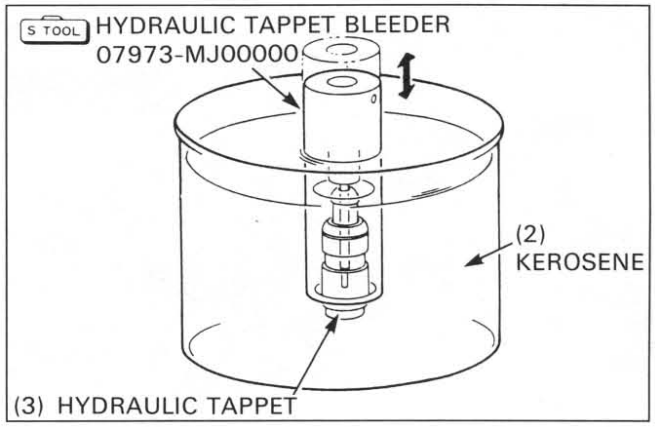
Hydraulic tappet bleeder 07973-MJ00000

Quickly try to compress the tappet by hand. Measure the compression stroke with the dial gauge.

Compression stroke : 0 - 0.2 mm(0 - 0.008 in)

Hydraulic Tappet Installation

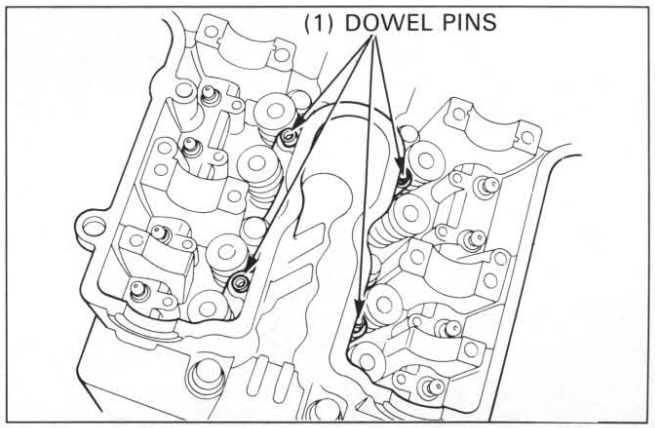
Place the tappet in a jar filled with kerosene.
Place the tappet bleeder over the tappet.
Hold the tappet upright and pump the tappet until air bubbles stop coming out. Remove the tool, and try to quickly compress the tappet by hand. You should not be able to compress it more than 0.2mm (0.008in).
Remove the tappet from the fluid keeping it upright.



S TOOL

Hydraulic tappet bleeder 07973-MJ00000

Fill the tappet hole with clean engine oil.
Install the hydraulic tappets in the cylinder head.
Install the dowel pins into the cylinder head.
Install the rocker arm holders and tighten the bolts.
Install the rocker arms.



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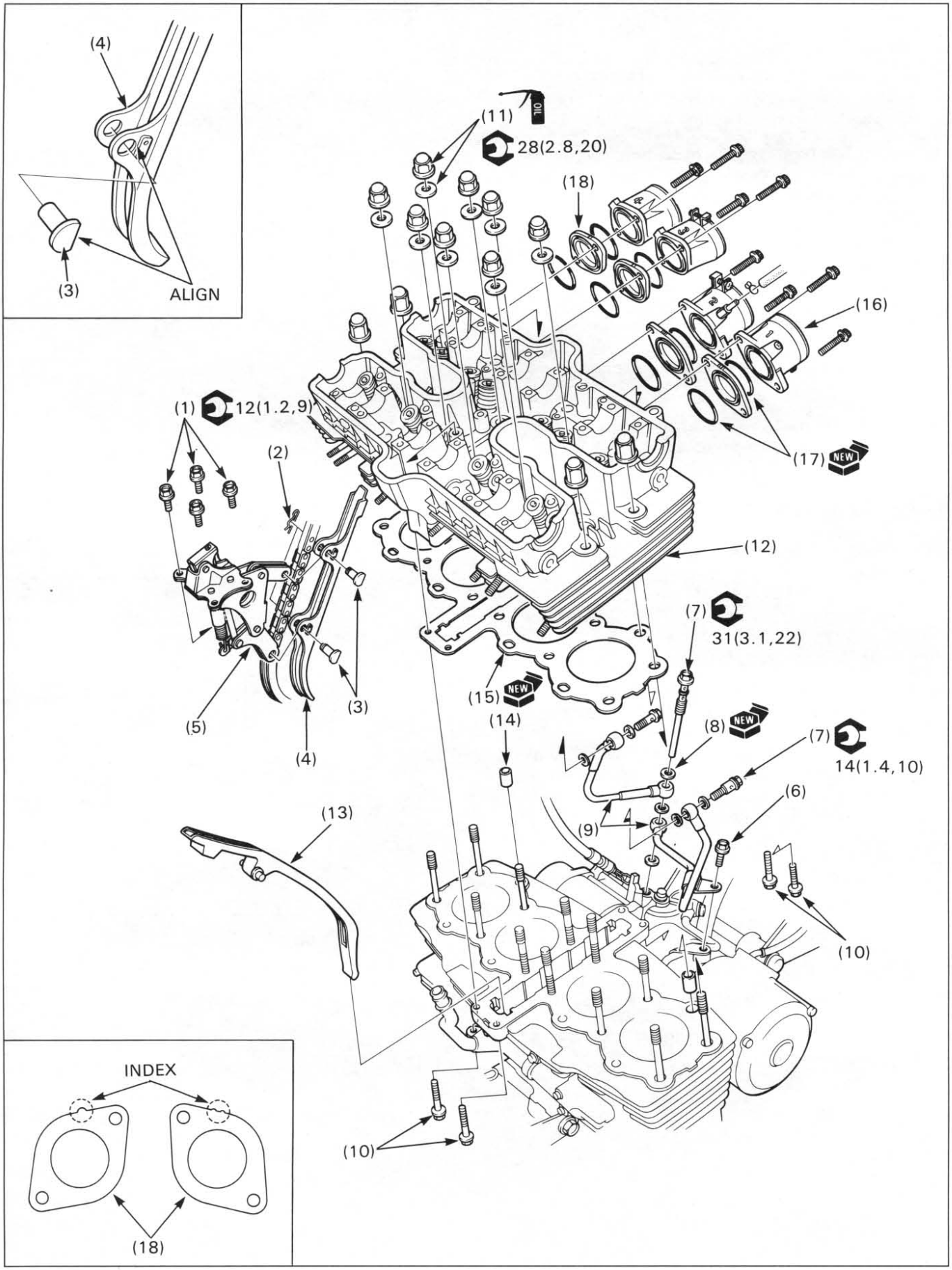
Cylinder Head Removal/Installation



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NOTE

- Cylinder head service can be done with the engine in the frame.

Requisite Service

- Hydraulic tappet removal/installation (page 7-2)
- Exhaust system removal/installation (page 2-2)
- Carburetor removal/installation (page 5-4)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Cam chain tensioner mounting bolt	4	
(2)	Clip	2	Be careful not to let the clips and pins fall into the crankcase.
(3)	Pin	2	
(4)	Cam chain tensioner slipper	1	
(5)	Cam chain tensioner body	1	Attach a piece of wire to the cam chain to prevent it from being dropped into the crankcase, then remove it.
(6)	Oil pipe mounting bolt	1	
(7)	Oil pipe bolt	3	
(8)	Sealing washer	7	
(9)	Oil pipe	2	**CAUTION** • **During removal and installation, do not bend the oil pipes.**
(10)	Cylinder head mounting bolt	4	
(11)	Cylinder head cap nut/washer	12/8	Remove the nuts in a crisscross pattern in 2 or 3 steps.
(12)	Cylinder head assembly	1	
(13)	Cam chain guide	1	
(14)	Dowel pin	2	
(15)	Gasket	1	
(16)	Caburetor insulator	4	
(17)	O-ring	8	
(18)	Insulator plate	4	Each insulator plate is indexed. Two index tabs: No. 1, 2 cylinder One index tab: No. 3, 4 cylinder

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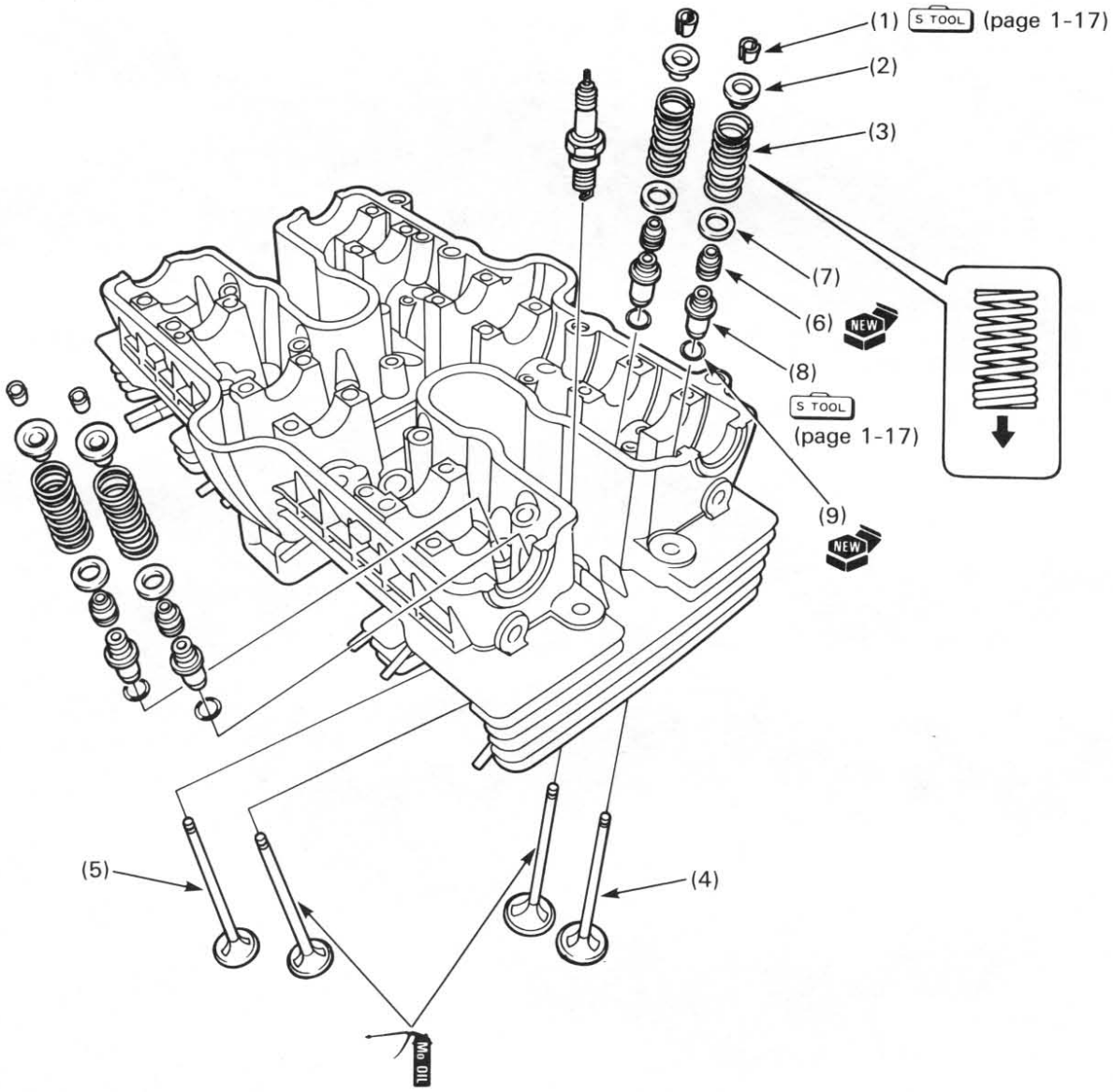
Cylinder Head Disassembly/Assembly



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CAUTION

- **Do not compress the valve springs more than necessary.**

NOTE

- Mark all parts during disassembly so they can be reinstalled in their original positions.
- Remove carbon deposits from the combustion chamber and clean off the head gasket surface before assembly.
  —Avoid damaging the gasket surface.
  —Gaskets will come off easier if they soaked in solvent.
- For valve guide replacement, see section 9 of the Common Service Manual.

Requisite Service

- Cylinder head removal/installation (page 7-8)

	Procedure	Q'ty	Remarks
	Disassembly Order		Assembly is in the reverse order of disassembly.
(1)	Valve spring cotter	16	To prevent loss of spring tension, do not compress the valve more than necessary.
(2)	Retainer	16	
(3)	Valve spring	16	Install them with the tightly wound coils facing down.
(4)	Inlet valve	16	
(5)	Exhaust valve	16	
(6)	Valve stem seal	16	To avoid damaging the stem seal, turn the valve slowly when inserting.
(7)	Valve spring seat	16	
(8)	Valve guide	16	
(9)	O-ring	16	

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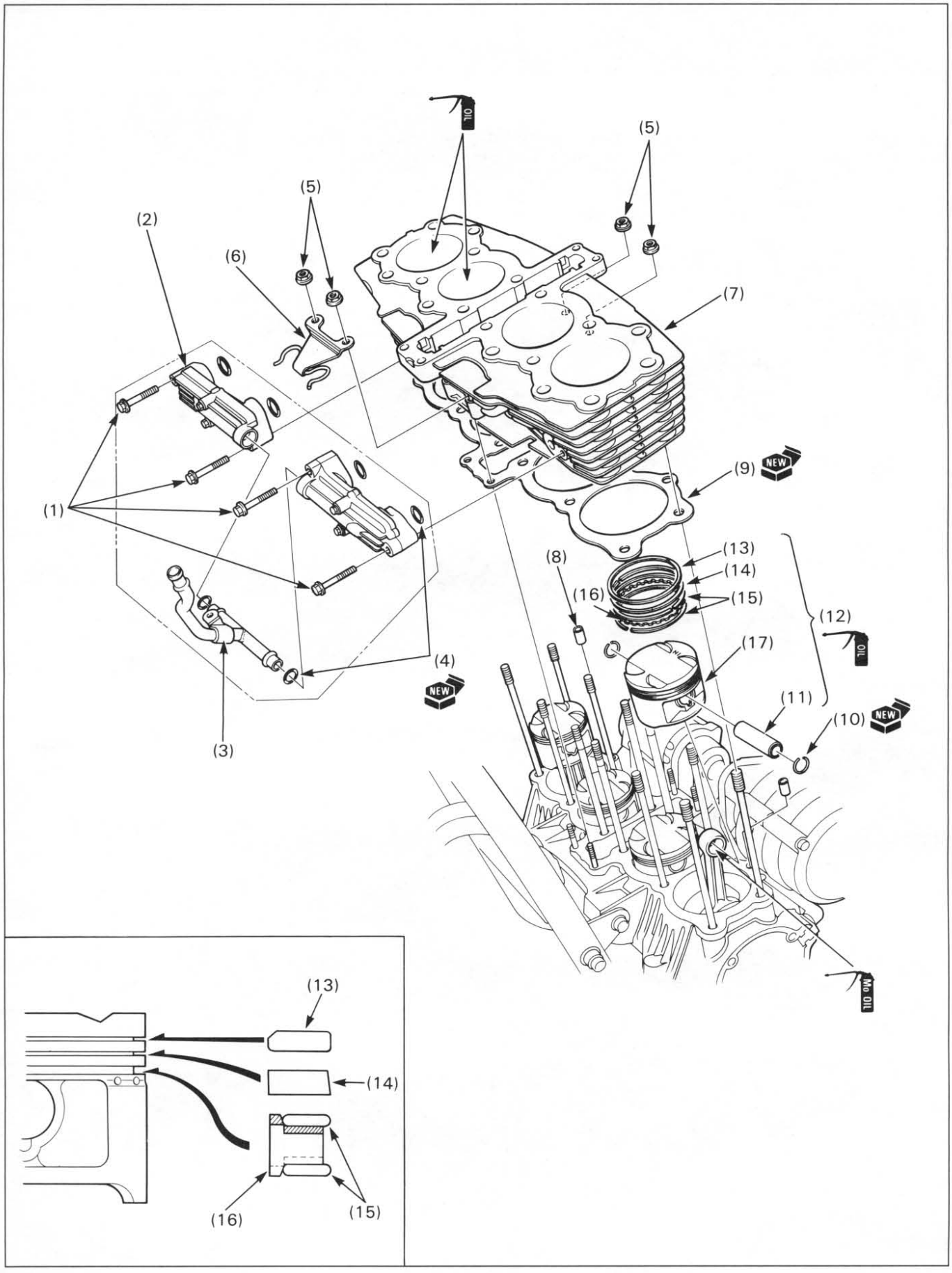
Cylinder, Piston Removal/Installation



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NOTE

- Do not damage the gasket surface.
- Do not let any material fall into the crankcase.

Requisite Service

- Cylinder head removal/installation (page 7-8)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	PAIR check valve case mounting bolt	4	California model only
(2)	PAIR check valve case	2	
(3)	PAIR check valve case joint pipe	1	
(4)	O-ring	6	
(5)	Cylinder holding nut	4	
(6)	Oil hose stay	1	
(7)	Cylinder	1	
(8)	Dowel pin	2	
(9)	Gasket	1	
(10)	Piston pin clip	8	Install new piston pin clips.
(11)	Piston pin	4	
(12)	Piston assembiy	4	NOTE • At installation, install the piston with the "IN" mark facing towards the intake side.
	Piston Ring Removal Order		Installation is in the reverse order of removal.
(13)	Top ring	4	NOTE
(14)	Second ring	4	• Use care when removing or installing the rings.
(15)	Side rail	8	
(16)	Spacer	4	• Insert the outside surface of the ring into the proper ring groove and roll the ring around the groove to make sure that the ring has a free fit around the piston's circumference.
(17)	Piston	4	

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8. Clutch/Gearshift Linkage

Service Information

- Clutch maintenance can be done with the engine in the frame.
- Transmission oil viscosity and level have and effect on clutch disengagement. When the clutch does not disengage or the vehicle creeps with the clutch disengaged, inspect the transmission oil level before servicing the clutch system.
- If the shift forks, drum and transmission require servicing, remove the engine and separate the crankcase (section 9)

Troubleshooting

Clutch Lever Too Hard
- Damaged, kinked or dirty clutch cable
- Improperly routed clutch cable
- Damaged clutch lifter mechanism
- Faulty clutch lifter plate bearing

Clutch Will Not Disengaged Or Motorcycle Creeps With Clutch Disengaged
- Too much clutch lever free play
- Clutch plates warped
- Oil level too high, improper oil viscosity, or additive used

Clutch Slips
- Clutch lifter sticking
- Worn clutch discs
- Weak clutch springs
- No clutch lever free play

Hard To Shift
- Misadjusted clutch cable
- Damaged or bent sift fork
- Bent shift fork shaft
- Incorrect engine oil viscosity
- Incorrect gearshift spindle assembly
- Damaged shift drum cam grooves

Transmission Jumps Out Of Gear
- Worn shift drum stopper arm
- Weak or broken gearshift spindle return spring
- Bent shift fork shaft
- Damaged shift drum cam grooves
- Worn gear dogs or slots

Gearshift Pedal Will Not Return
- Weak or broken gearshift spindle return spring
- Bent gearshift spindle

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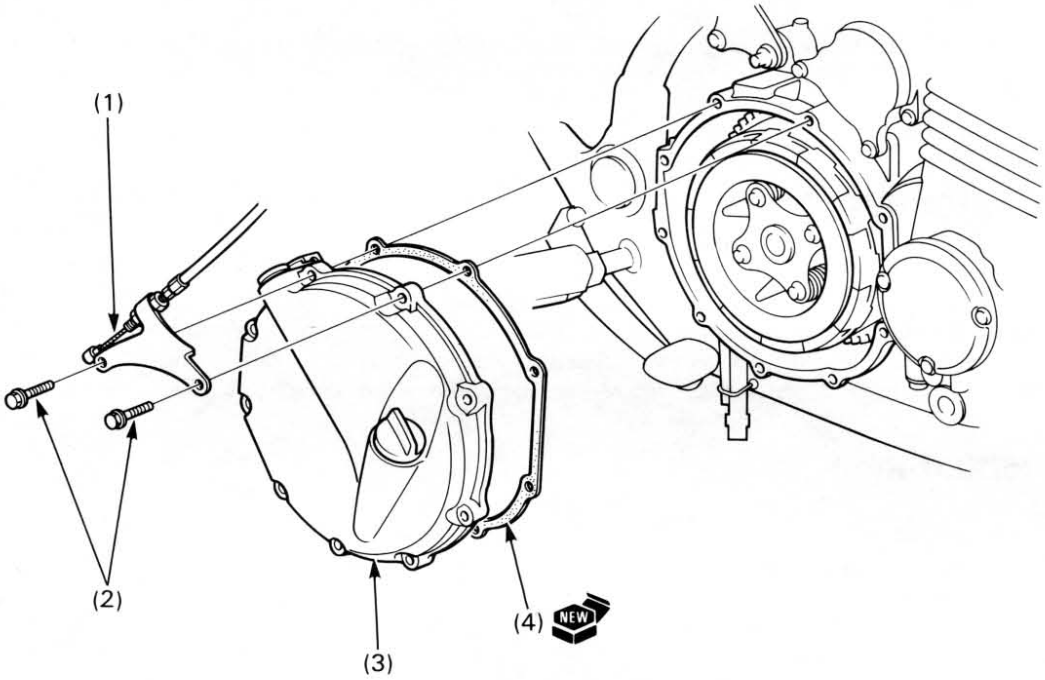
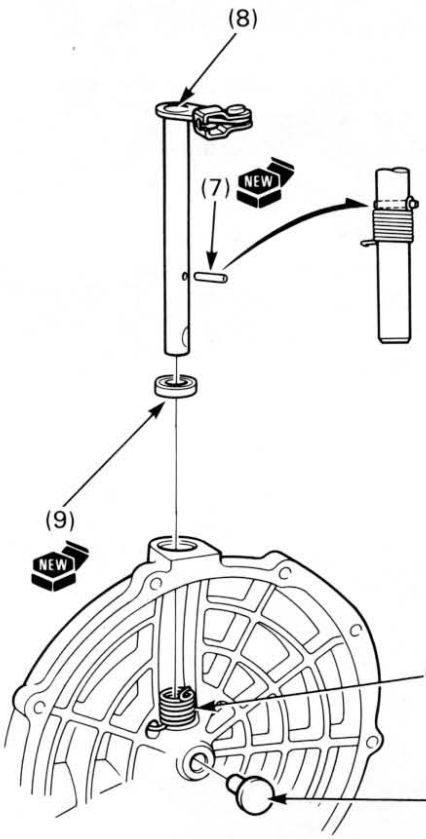
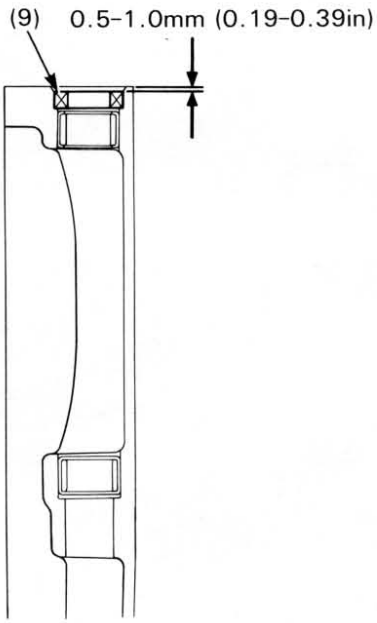
Clutch Cover Removal/Installation







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Requisite Service

- Engine oil draining/refill

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Clutch cable	1	
(2)	Clutch cover bolt	9	
(3)	Clutch cover	1	
(4)	Gasket	1	
	Clutch Lifter Disassembly Order		Assembly is the reverse order of disassembly
(5)	Clutch liter rod	1	
(6)	Return spring	1	
(7)	Spring pin	1	Drive in a new spring pin using a pin driver until the pin does not interfere with the lifter arm as shown.
(8)	Clutch lifter arm	1	
(9)	Oil seal	1	

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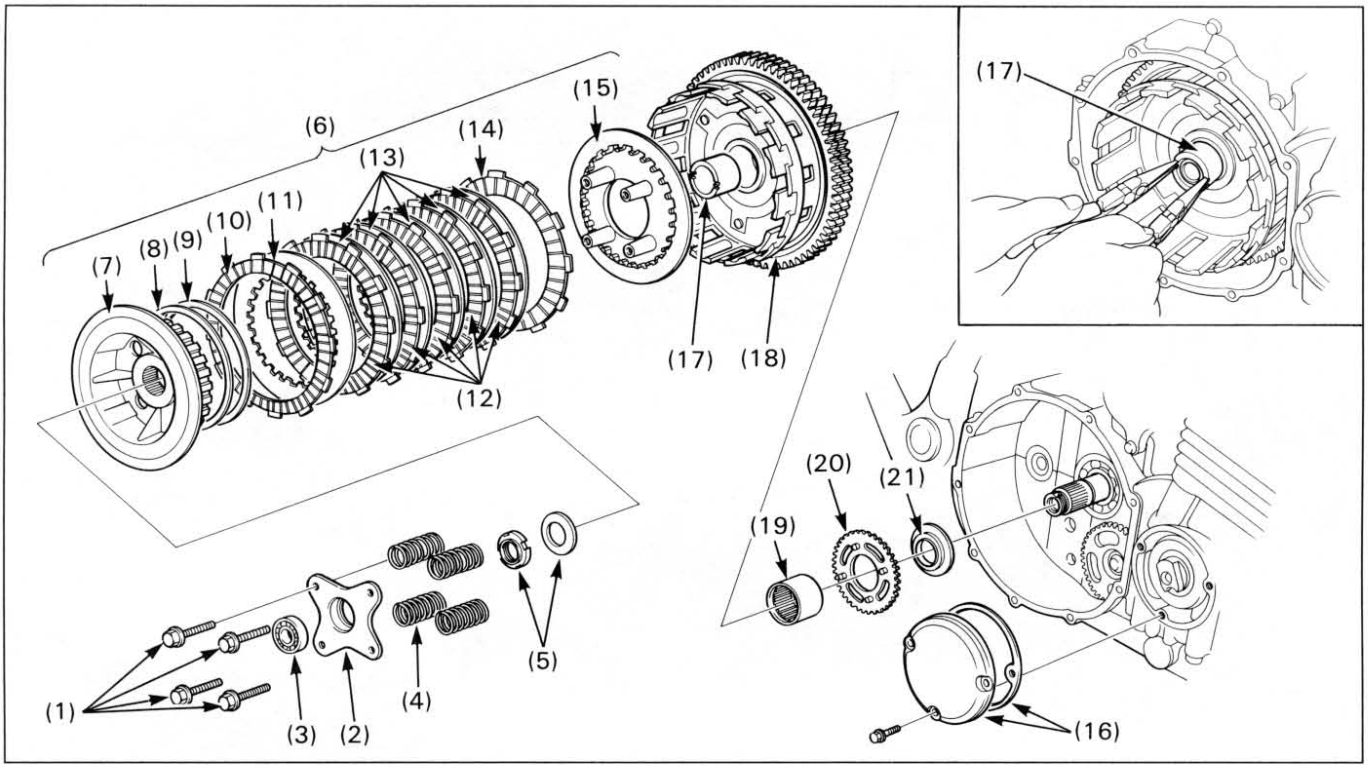
Clutch Removal



NOTE

- Turn the crankshaft clockwise until the No.4 crank weight is positioned at BTDC.

Requisite Service

- Clutch cover removal (page 8-2)

	Procedure	Q'ty	Remarks
	Removal Order		
(1)	Clutch lifter plate bolt	4	
(2)	Clutch lifter plate	1	
(3)	Clutch lifter plate bearing	1	
(4)	Clutch spring	4	
(5)	Clutch center lock nut/lock washer	1	Removal (page 8-5)
(6)	Clutch assembly		
(7)	—clutch center	1	
(8)	—spring seat	1	
(9)	—judder spring	1	
(10)	—clutch friction disc C	1	Larger I.D. disc/Color: black
(11)	—clutch plate B	1	Color: gray
(12)	—clutch friction disc B	5	Smaller I.D. disc
(13)	—clutch plate A	5	Color: silver
(14)	—clutch friction disc A	1	Smaller I.D. disc/Color: black
(15)	—pressure plate	1	
(16)	Right crankshaft cover/gasket	1	
(17)	Clutch outer guide	1	Pull the clutch outer guide out with needle nose pliers.
(18)	Clutch outer	1	
(19)	Needle bearing	1	
(20)	Oil pump drive sprocket	1	
(21)	Collar	1	

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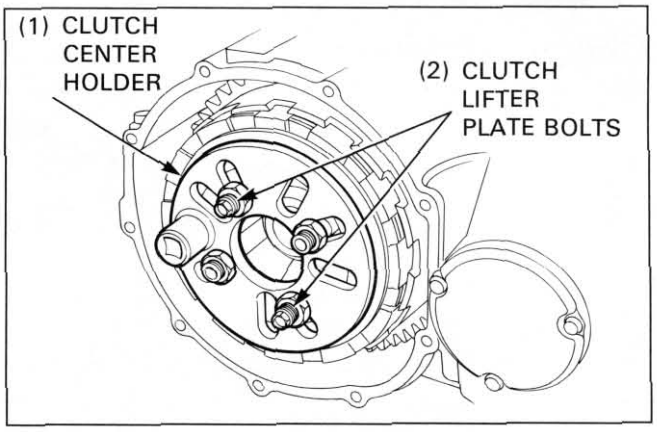
Clutch Center Lock Nut Removal

Unstake the nut.
Set the clutch center holder to the pressure plate bosses and loosely install the nuts.

S TOOL

Clutch center holder **07JMB-MN50300 or 07HGB-001000A (U.S.A.only)**

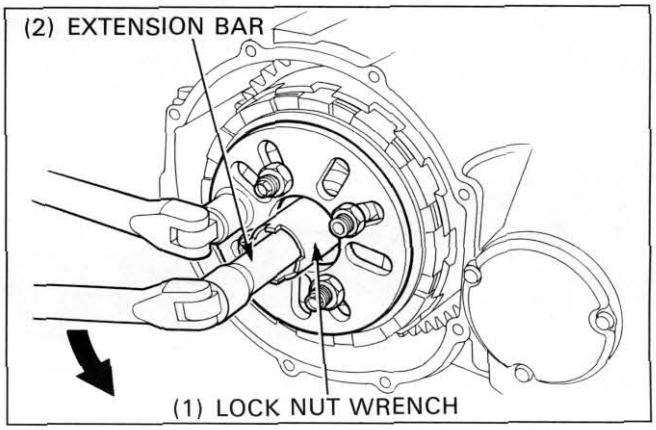
Temporarily remove the tool and tighten nuts;then reinstall the clutch center holder onto the bosses. Use at least four clutch lifter plate bolts to secure the tool to the clutch.



Hold the clutch center holder and remove the lock nut as shown.

S TOOL

Lock nut wrench, 26 x 30 mm **07716-0020203**
Extension bar **07716-0020500 or equivalent commercially available in U.S.A.**



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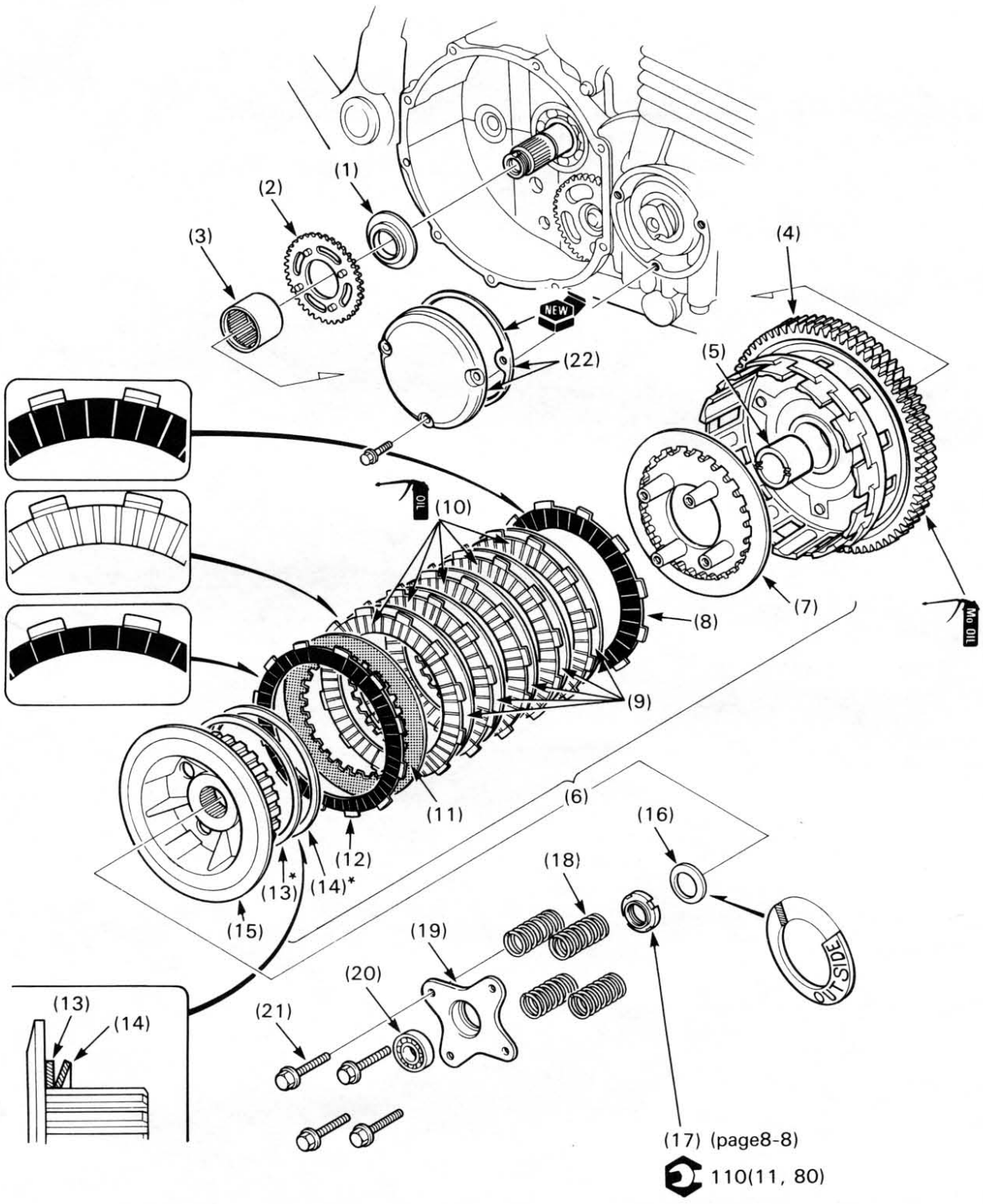
Clutch Installation



Proper Order Shown

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Requisite Service

- Clutch removal (page 8-4)
- Clutch cover installation (page 8-2)

	Procedure	Q'ty	Remarks
	Installation Order		
(1)	Collar	1	
(2)	Oil pump drive sprocket	1	
(3)	Needle bearing	1	
(4)	Clutch outer	1	Installation (see below)
(5)	Clutch outer guide	1	
(6)	Clutch assembly	—	
(7)	—pressure plate	1	
(8)	—clutch friction disc A	1	Smaller I.D. disc/Color: black
(9)	—clutch plate A	5	Color: silver
(10)	—clutch friction disc B	5	Smaller I.D. disc
(11)	—clutch plate B	1	Color: gray
(12)	—clutch friction disc C	1	Larger I.D. disc/Color:black
(13)	—spring seat	1	
(14)	—judder spring	1	Face the dished side of the judder spring to the outside.
(15)	—clutch center	1	
(16)	Lock washer	1	Install with the "OUTSIDE" mark facing up.
(17)	Clutch center lock nut	1	Installation (page 8-8)
(18)	Clutch spring	4	
(19)	Clutch lifter plate	1	
(20)	Clutch lifter plate bearing	1	Install with the marked side facing out.
(21)	Clutch lifter plate bolt	4	Install in a gradual, crisscross pattern.
(22)	Right crankshaft cover/gasket	1	

Clutch Outer Installation

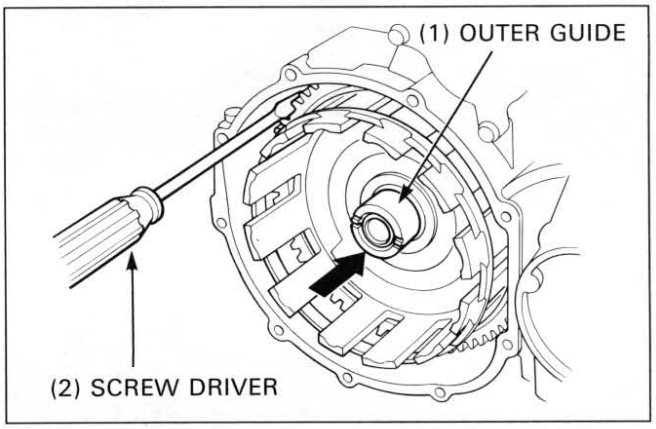
Turn the crankshaft clockwise until the No. 4 crank weight is positioned at BTDC.

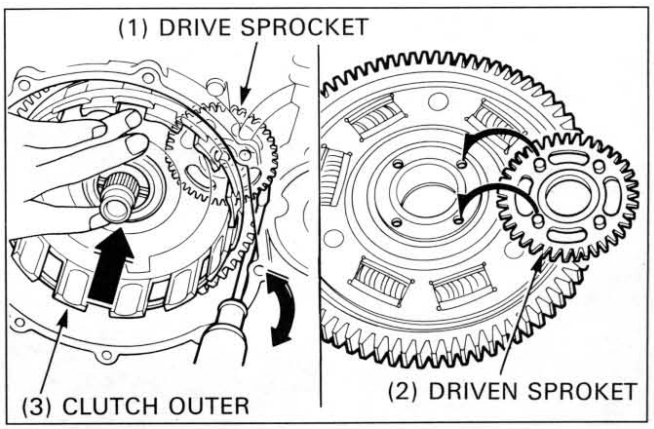
Install the clutch outer over the mainshaft.
Install the clutch outer guide between the mainshaft and clutch outer and push it in until it stops.

NOTE

- Install the clutch outer guide onto the mainshaft while moving the drive sub gear to align the two gear teeth using a screwdriver. Take care not to damage the gear teeth.

Push the clutch outer ... while moving the primary drivin gears with a screwdriver, then further push it in while moving the oil pump driven sprocket with the screwdriver to fit the pins on the drive sprocket into the holes in the clutch outer.





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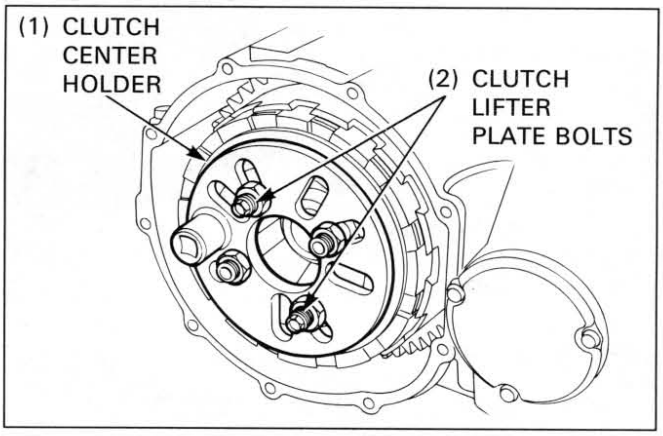
Clutch Center Lock Nut Installation

Position the tools as shown and use at least four clutch lifter plate bolts to secure the tool to the clutch.

S TOOL

Clutch center holder — **07JMB–MN50300 or 07HGB–001000A (U.S.A. only)**



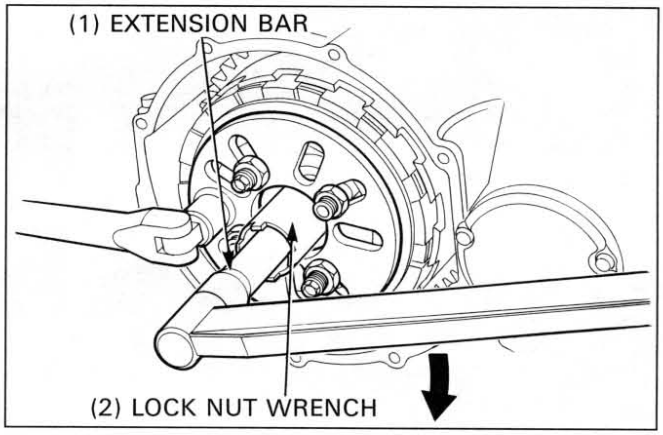
Hold the clutch center holder and torque the clutch center lock nut as shown.

S TOOL

Lock nut wrench, 26 x 30 mm — **07716–0020203**
Extension bar — **07716–0020500 or equivalent commercially available in U.S.A.**

Torque: 110 N·m (11 kg-m, 80 ft-lb)

Stake the lock nut onto the mainshaft.



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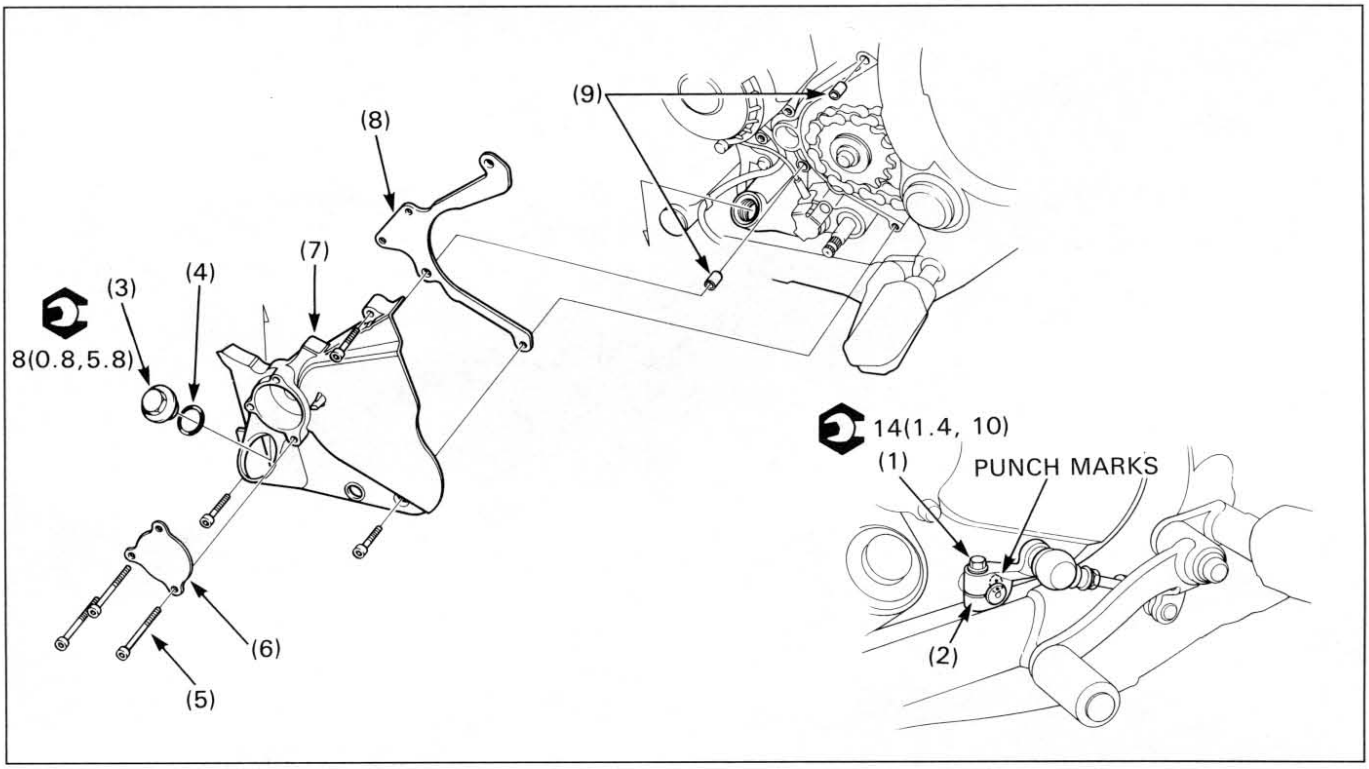
Drive Sprocket Cover Removal/Installation



CAUTION

- **Be careful not to damage the wire harnesses by pinching them between the sprocket cover and engine.**

NOTE

- Route the wire harnesses properly (page 1-25).

Requisite Service

- Engine oil draining/refill

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Gearshift spindle joint bolt	1	
(2)	Gearshift spindle joint	1	At installation, align the punch marks on the joint and spindle.
(3)	Change cover cap	1	
(4)	O-ring	1	
(5)	Drive sprocket cover bolt	6	
(6)	Drive sprocket cover plate	1	
(7)	Drive sprocket cover	1	
(8)	Drive chain guide	1	
(9)	Dowel pin	2	

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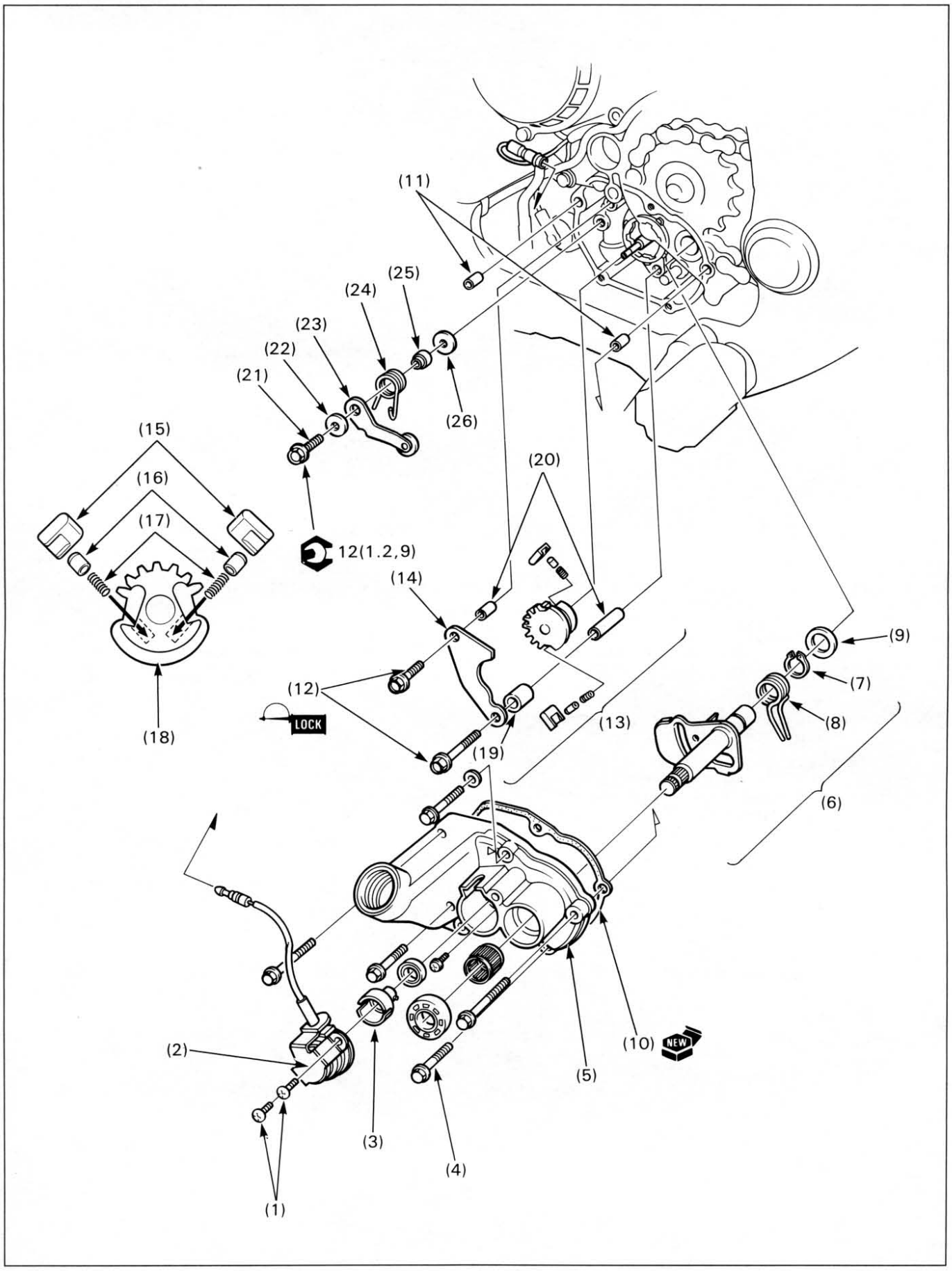
Gearshift Linkage Removal/Installation



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NOTE

- Shift the transmission into neutral before removing or installing the gearshift linkage.

Requisite Service

- Drive sprocket cover removal/installation (page 8-9)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Neutral switch mounting bolt	1	
(2)	Neutral switch	1	• Disconnect the neutralswitch connector. • Installation (page 8-12)
(3)	Neutral switch joint	1	
(4)	Gearshift linkage cover bolt	5	
(5)	Gearshift linkage cover	1	• Remove/install as an assembly. • Installation (page 8-12)
(6)	Gearshift spindle assembly	—	
(7)	—snap ring	1	
(8)	—return spring	1	
(9)	Washer	1	
(10)	Gasket	1	
(11)	Dowel pin	2	
(12)	Guide plate mounting bolt	1	
(13)	Guide plate/drum shifter assembly	—	Assembly:as illustrated
(14)	—guide plate	1	
(15)	—ratchet pawl	2	Pawl orientation as shown.
(16)	—plunger	2	
(17)	—spring	2	
(18)	—drum shifter	1	
(19)	Collar	1	
(20)	Dowel pin	2	
(21)	Stopper arm bolt	1	
(22)	Washer	1	
(23)	Stopper arm	1	
(24)	Spring	1	
(25)	Collar	1	
(26)	Washer	1	

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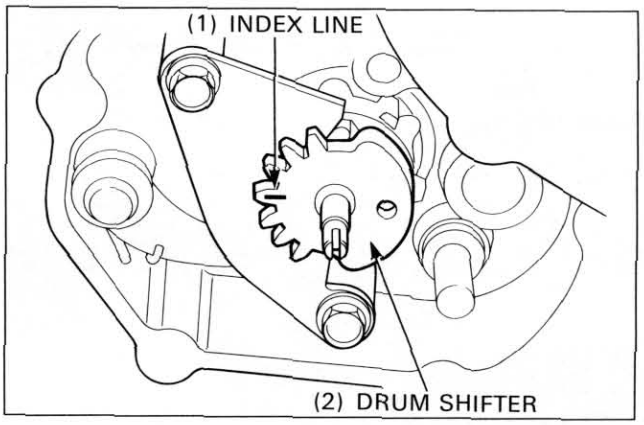
Gearshift Linkage Cover/Gearshift Spindle Assembly Installation

NOTE

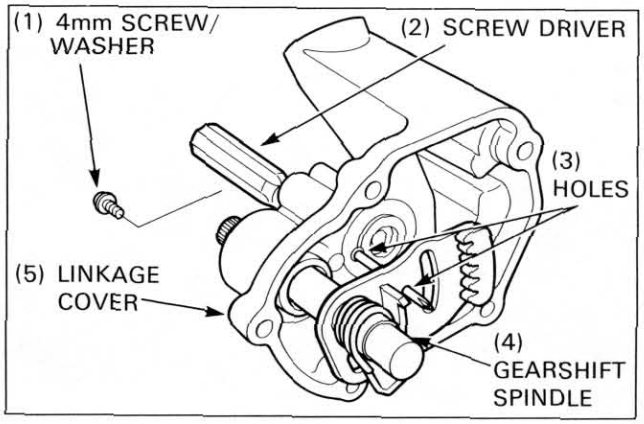
- The transmission should be in neutral to install the linkage.
- With the transmission in neutral, the index line on the drum shifter teeth faces forward as shown.



Remove the 4mm screw and washer from gearshift linkage cover.

Install the gearshift spindle assembly in the gearshift linkage cover.
Align the holes in the gearshift spindle and linkage cover with a screwdriver. (Keep the screwdriver in place.)

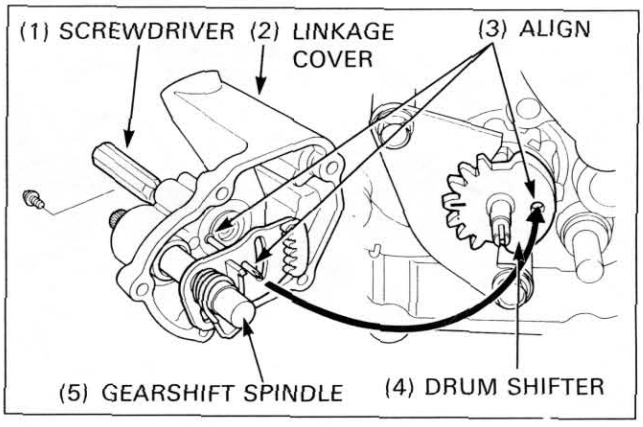
Install the dowel pins and new gasket.



Install the linkage cover/gearshift spindle assembly with the screwdriver through the hole in the shifter.
Install and tighten the gearshift linkage cover bolts.

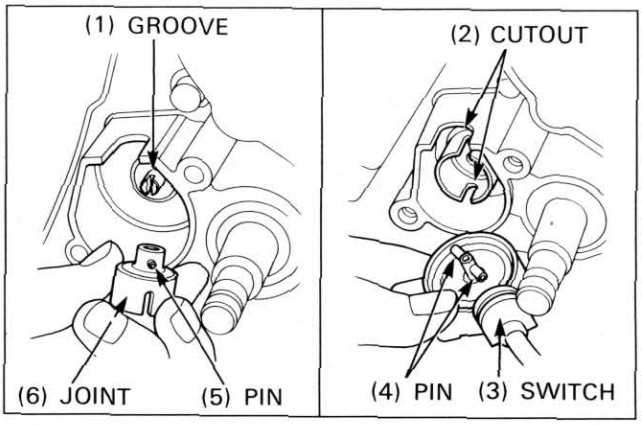
Torque: 12 N·m (1.2 kg-m, 9ft-lb)

Remove the screwdriver, install the washer and 4mm screw.



Neutral Switch Installation

Install the neutral switch joint, aligning the joint pin with the groove in the gearshift drum.
Install the neutral switch, aligning the switch pin of the switch with the cutout in the switch joint.



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9. Crankshaft/Transmission

Service Information

- This section covers crankcase separation in order to service the crankshaft, transmission and alternator shaft.
- The following parts must be removed before separating the crankcase.
  —Alternator (Section 13)
  —Clutch/gearshift linkage (Section 8)
  —Cylinder head/cylinder/piston (Section 7)
  —Engine (Section 6)
  —Oil pump (Section 4)
  —Starter motor (Section 15)
- Prior to assembling the crankcase halves, apply a sealant to their mating surfaces. Wipe off excess sealant thoroughly.
- Mark and store the bearing inserts to be sure of their correct locations for reassembly. If the inserts are improperly installed they will block the oil holes, causing insufficient lubrication and eventual engine seizure.

Troubleshooting

Excessive Noise
- Worn connecting rod big-end bearing
- Bent connecting rod
- Worn crankshaft main bearing
- Worn transmission bearing

Hard To Shift
- Improper clutch operation
- Incorrect engine oil viscosity
- Incorrect clutch adjustmest
- Bent shift fork
- Bent fork shaft
- Bent fork claw
- Damaged shift drum cam grooves
- Bent shift spindle

Transmission Jumps Out Of Gear
- Worn gear dogs or slots
- Bent fork shaft
- Broken shift drum stopper
- Worn or bent shift forks
- Broken shift linkage return spring

Engine Vibration
- Excessive crankshaft runout
- Loose engine mount bolts

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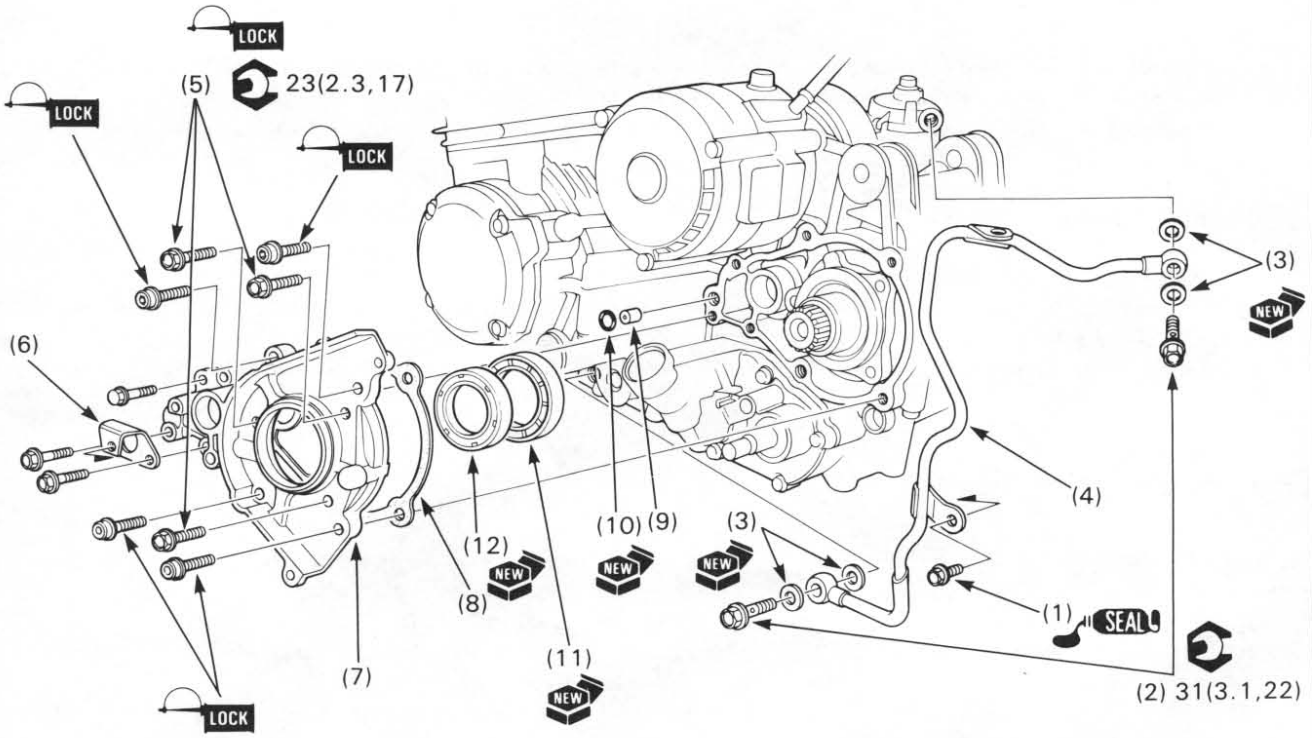
Countershaft Bearing Cover Removal/Installation



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NOTE

- After installation, check that there are no oil leaks.

Requisite Service

- Engine removal/installation (page6-2)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Oil pipe mounting bolt	1	
(2)	Oil pipe bolt	2	
(3)	Sealing washer	4	
(4)	Oil pipe A	1	NOTE • Be careful not to bend oil pipe.
(5)	Countershaft bearing cover bolt	10	
(6)	Oil pipe stay	1	
(7)	Countershaft bearing cover	1	
(8)	Gasket	1	
(9)	Oil orifice	1	
(10)	O-ring	1	
(11)	Oil seal	1	
(12)	Oil seal	1	

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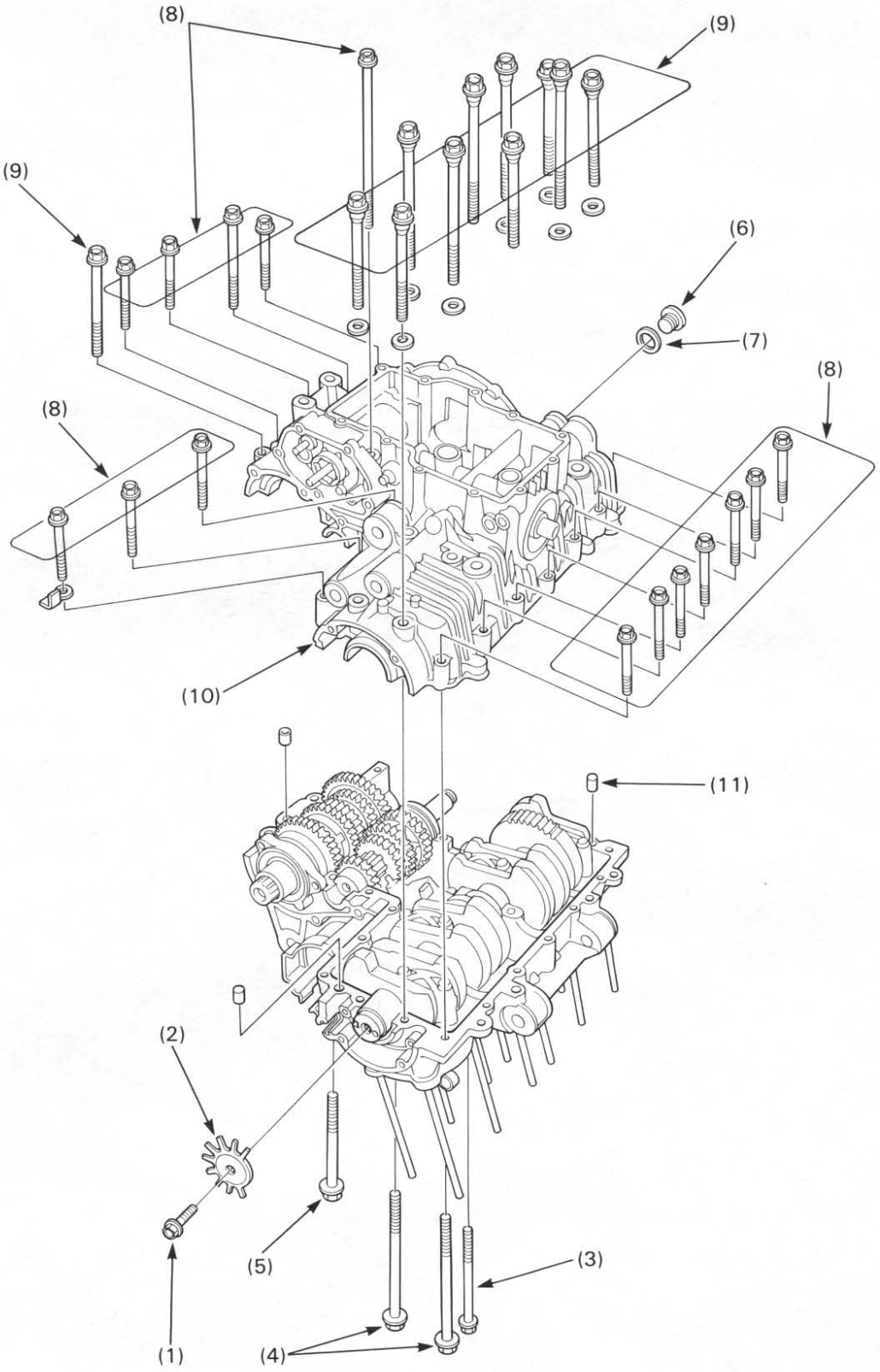
Crankcase Separation



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NOTE

- Refer to Service Information (page 9-1) a list of parts which must be removed before separating the crankcase.

	Procedure	Q'ty	Remarks
(1)	Ignition pulse generator rotor bolt	1	
(2)	Ignition pulse generator rotor	1	
(3)	Upper crankcase bolt (6 mm)	1	
(4)	Upper crankcase bolt (7 mm)	2	
(5)	Upper crankcase bolt (8 mm)	1	
(6)	Sealing bolt	1	
(7)	Sealing washer	1	
(8)	Lower crankcase bolt (6 mm)	15	
(9)	Lower crankcase bolt (8 mm)	11	Bolts (8 pcs) have sealing washers.
(10)	Lower crankcase	1	
(11)	Dowel pin		

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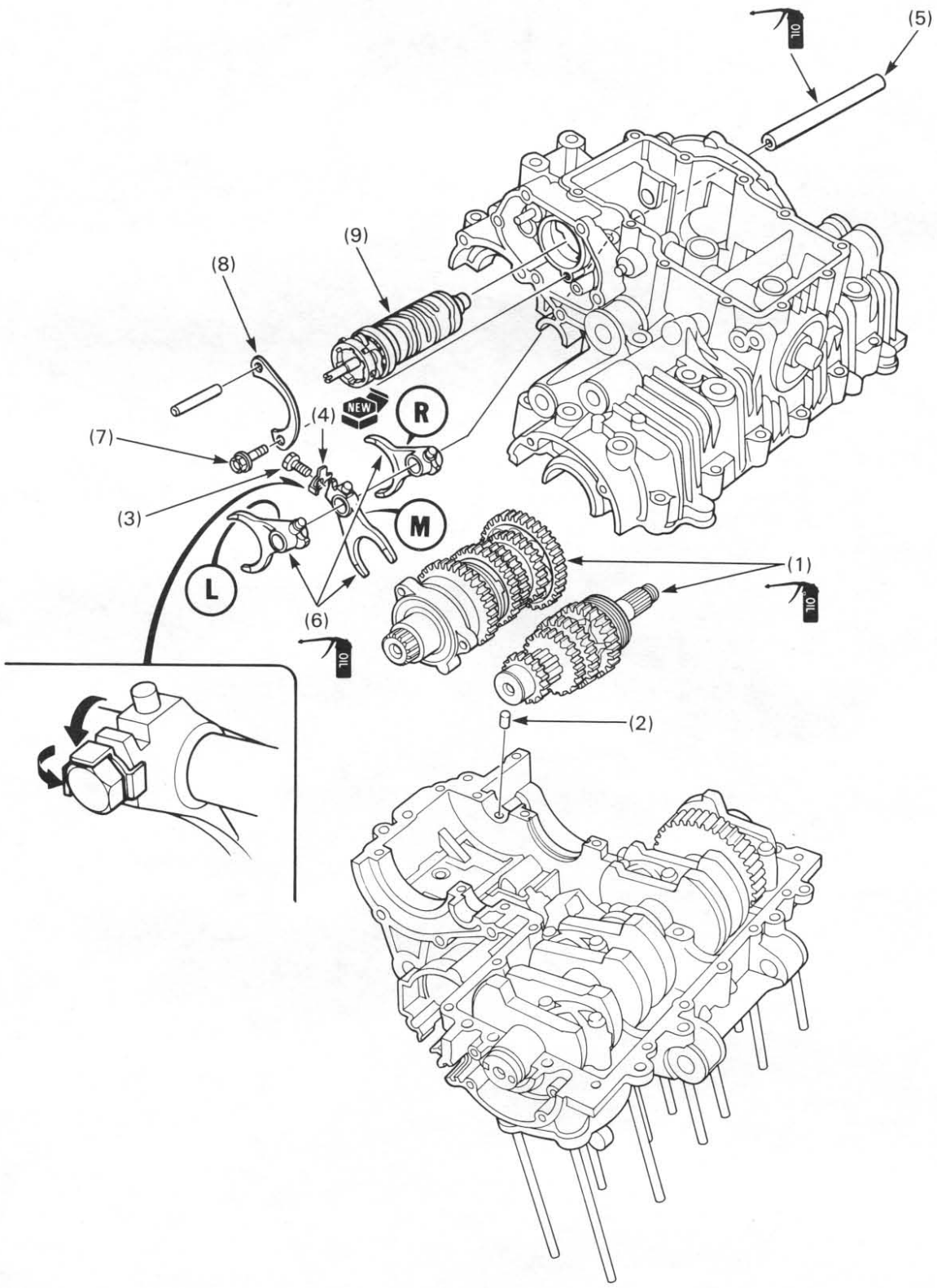
Transmission Removal/Installation



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Requisite Service

- Crankcase separation (page 9-4)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Mainshaft/countershaft assembly	1/1	At installation, align the mainshaft bearing set ring with the case groove and align the countershaft bearing case hole with the dowel pin. Align the bearing holder bolt holes and ensure that they align with the countershaft bearing cover. (Refer to page 9-2)
(2)	Dowel pin	1	
(3)	Center fork mounting bolt	1	Remove after bending down the lock washer tab. Bend new lock washer tabs as shown.
(4)	Lock washer	1	Install a new lock washer.
(5)	Shift fork shaft	1	
(6)	Shift fork	3	Install with the identification mark (R: Right, M: Center, L: Left) side facing the right side as shown.
(7)	Shift drum bearing stopper plate bolt	1	Install the dowel pin and then tighten the stopper plate bolt.
(8)	Shift drum bearing stopper plate	1	
(9)	Shift drum	1	

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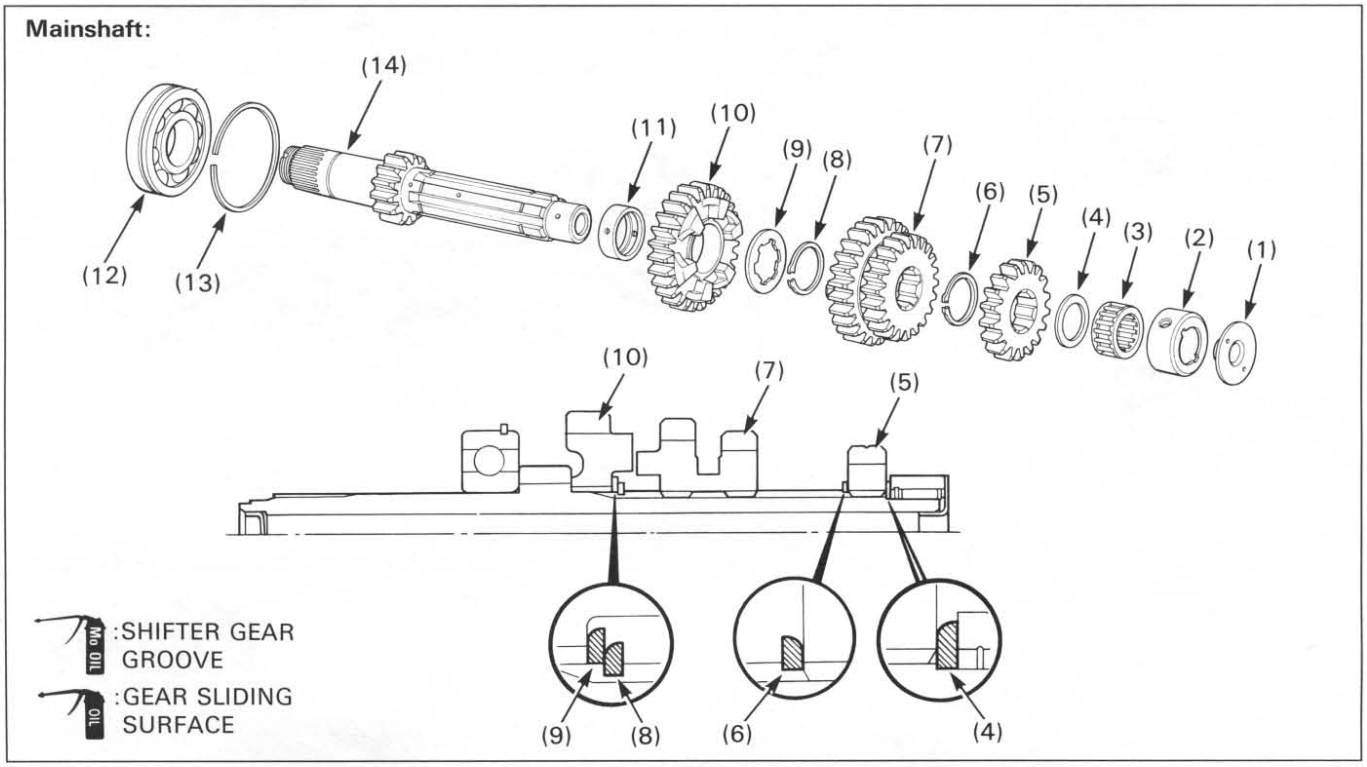
Transmission Disassembly/Assembly



NOTE

- When assembling the transmission, apply molybdenum disulfide oil to M3/M4,C5 and shifter gear shift fork groove.
- Always install the thrust washers and snap rings with the chamfered (rolled) edge facing away from from the thrust load.
- After installing a snap ring, slightly open the ring and rotate it in its groove to be sure it is fully seated.
- Do not use worn snap rings which could easily spin in the groove. They may be too loose to properly seat in the groove.
- Align the gap in the snap ring with the spline groove.

Requisite Service

- Transmission removal/installation (page 9-6)

	Procedure	Q'ty	Remarks
	Mainshaft Disassembly Order		Assembly is in the reverse order of disassembly.
(1)	Orifice plate	1	
(2)	Bearing case	1	
(3)	Needle bearing	1	
(4)	Thrust washer	1	
(5)	M2 gear (18T)	1	
(6)	Snap ring	3	
(7)	M3/M4 gear (22/25T)	1	
(8)	Snap ring	1	
(9)	Spline washer	1	
(10)	M5 gear (27T)	1	
(11)	M5 bushing	1	
(12)	Mainshaft bearing	1	
(13)	Set ring	1	
(14)	Mainshaft (M1 gear/14T)	1	

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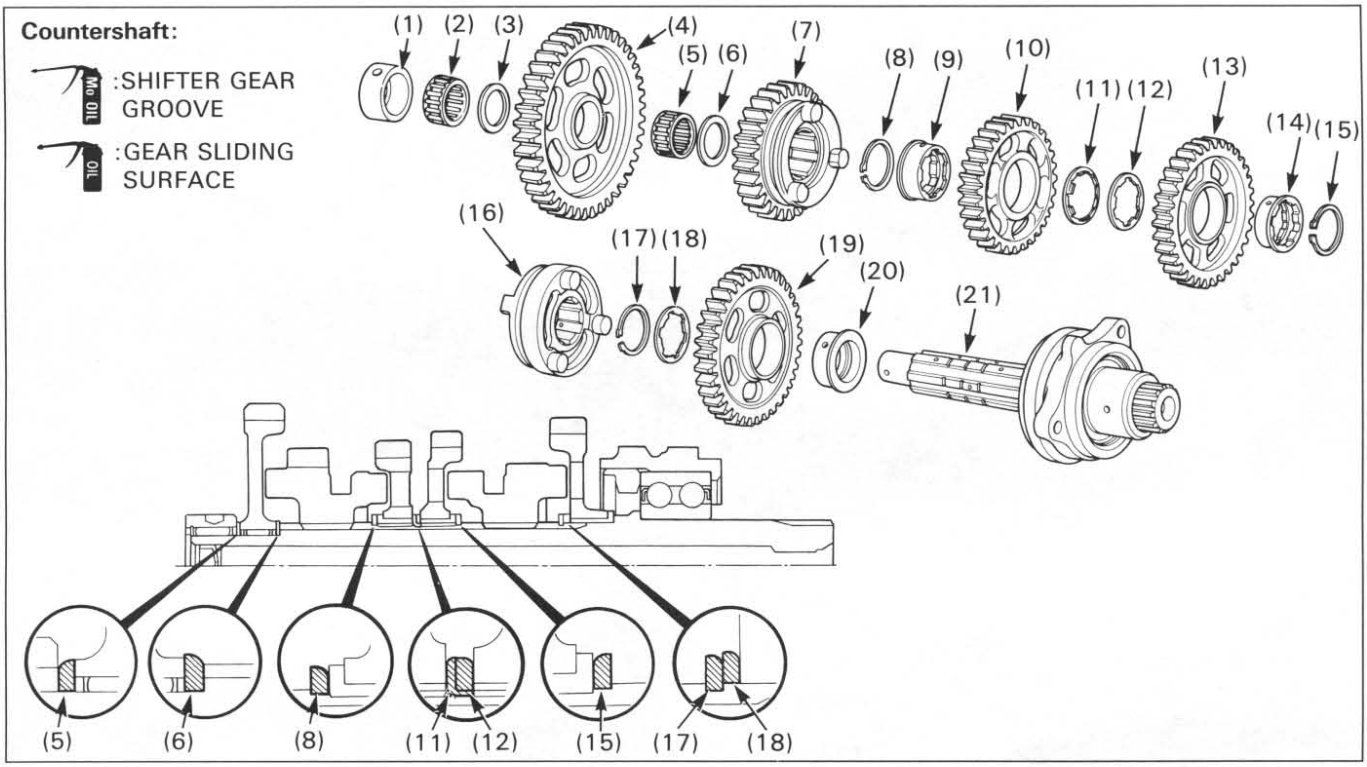

	Procedure	Q'ty	Remarks
	Countershaft Disassembly Order		Assembly is in the reverse order of disassembly.
(1)	Bearing case	1	
(2)	Needle bearing	1	
(3)	Thrust washer	1	
(4)	C1 gear (42T)	1	
(5)	Needle bearing	1	
(6)	Thrust washer	3	
(7)	C5 gear (29T)	1	
(8)	Snap ring	1	
(9)	C4 spline bushing	1	
(10)	C4 gear (31T)	1	
(11)	Lock washer	1	
(12)	Spline washer	1	
(13)	C3 gear (34T)	1	
(14)	C3 spline bushing	1	
(15)	Snap ring	1	
(16)	Shifter gear	1	
(17)	Snap ring	1	
(18)	Spline washer	1	
(19)	C2 gear (37T)	1	
(20)	C2 bushing	1	
(21)	Countershaft	1	

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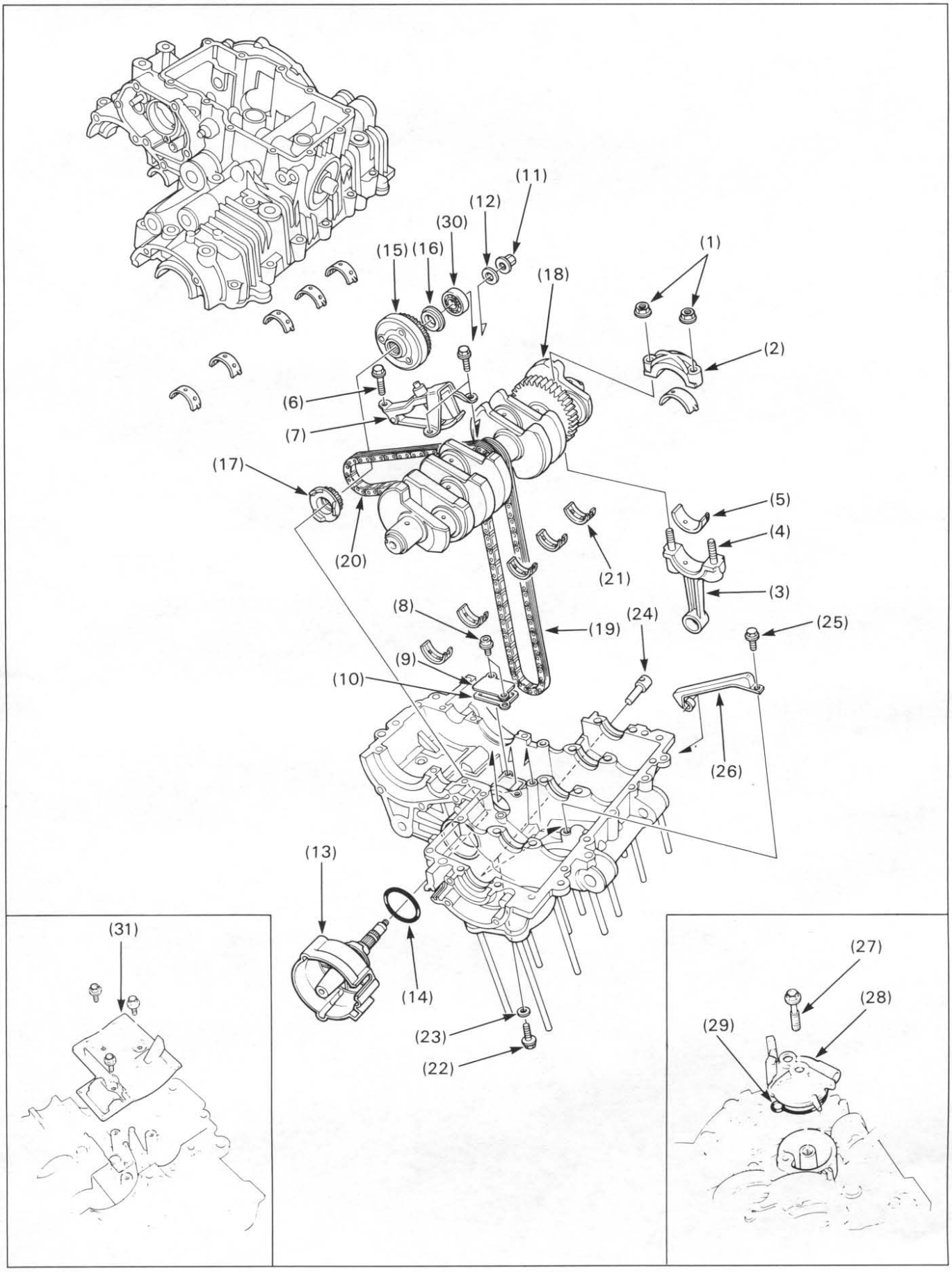
Crankshaft, Connecting Rod Removal



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NOTE

- Determine the replacement bearing color code according to the main bearing selection table (page 9-14) or the connecting rod bearing selection table (page 9-15).
- Mark and store the bearing inserts to be sure of their correct locations for reassembly.
- Refer to page 1-8 for crankshaft and rod specification.
- Refer to section 14 of the Common Service Manual for bearing inspection.

Requisite Service

- Crankcase separation (page 9-4)
- Transmission removal/installation (page 9-6)

	Procedure	Q'ty	Remarks
	Removal Order		
(1)	Connecting rod bearing cap nut	8	
(2)	Bearing cap	4	
(3)	Connecting rod	4	
(4)	Connecting rod bolt	8	Do not remove unless necessary.
(5)	Connecting rod bearing	8	
(6)	Alternator drive chain tensioner bolt	3	
(7)	Alternator drive chain tensioner	1	
(8)	Oil chamber cover bolt	2	
(9)	Oil chamber cover	1	
(10)	Gasket	1	
(11)	Alternator shaft nut	1	Removal (see below)
(12)	Washer	1	
(13)	Alternator shaft assembly	1	Disassembly and assembly (page 9-12)
(14)	O-ring	1	
(15)	Starter clutch assembly	1	Disassembly and assembly (page 15-8)
(16)	Collar	1	
(17)	Alternator driven sprocket	1	
(18)	Crankshaft	1	
(19)	Cam chain	1	
(20)	Alternator drive chain	1	
(21)	Crankshaft main journal bearing	10	
(22)	Alternator drive chain slipper pin bolt	1	
(23)	Washer	1	
(24)	Alternator drive chain slipper pin	1	
(25)	Alternator drive chain slipper bolt	1	
(26)	Alternator drive chain slipper	1	
(27)	Air separator bolt	1	
(28)	Air separator cover	1	Blow the oil hole in the air separator cover with compressed air.
(29)	O-ring	1	
(30)	Alternator shaft bearing (6203)	1	For removal use remover, 17 mm (07936–3710300) and handle (07936–3710100) and sliding weight (07741–0010201 or 07936–3710200).
(31)	Crankcase breather separator	1	Do not remove, without necessary.

Alternator Shaft Nut Removal/Installation

Temporarily install the alternator rotors and hold the rotor with the universal holder .

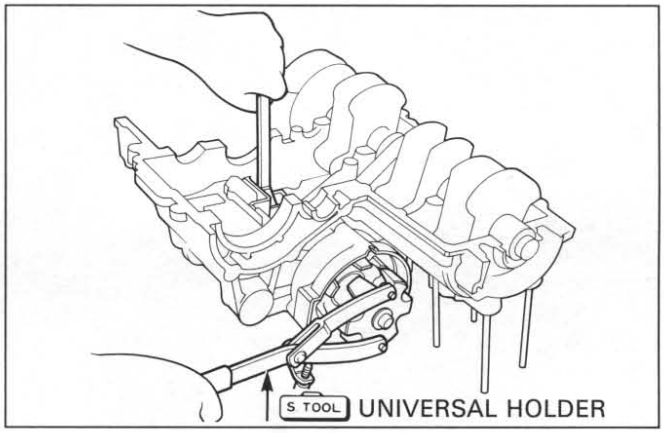
S TOOL

Universal holder **07725-0030000**

Remove the alternator shaft nut.

Installation is in the reverse order of removal.

Torque: 34 N·m (3.4 kg-m, 25 ft-lb)



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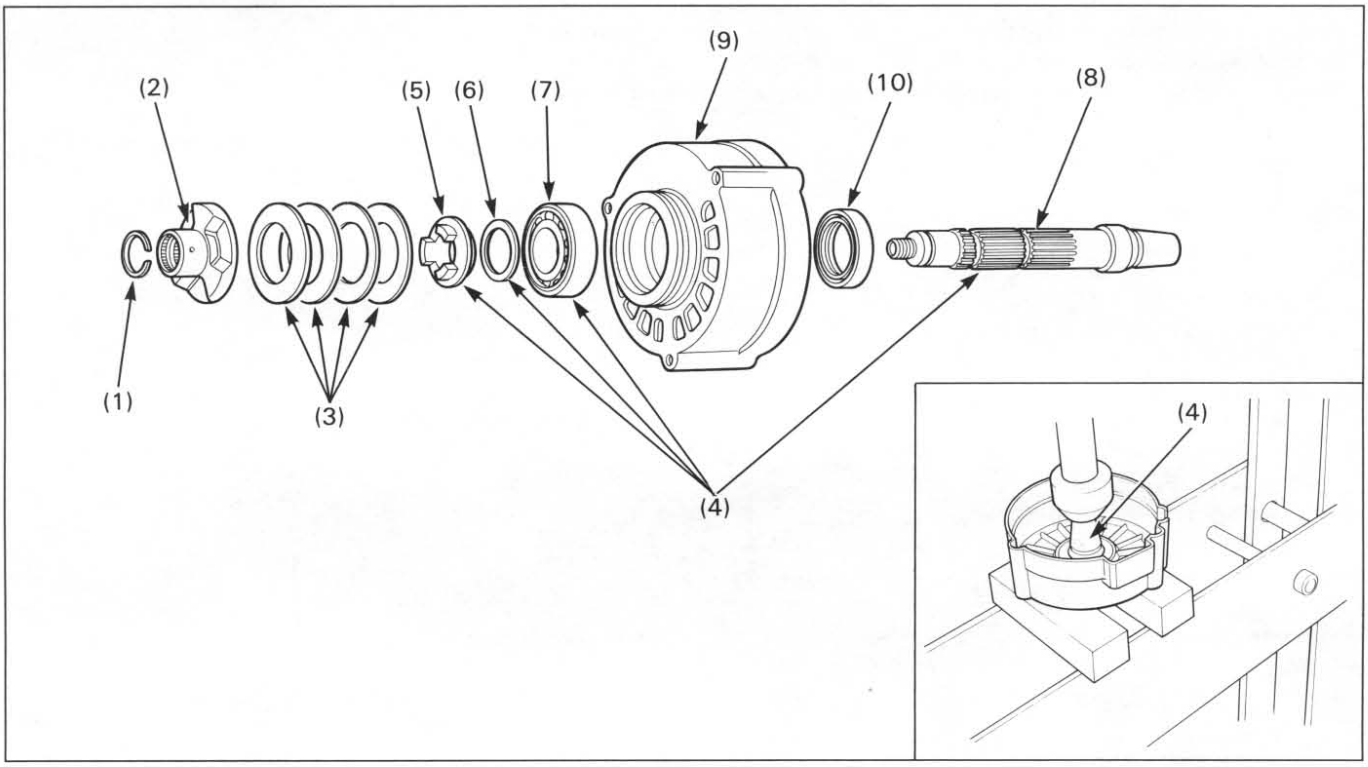
Alternator Shaft Disassembly/Assembly



NOTE

- Never reinstall the old bearing; once the bearing is removed, it must be replaced with a new one.
- Blow the oil line in the alternator shaft with compressed air.

Requisite Service

- Crankshaft removal (page 9-10)

	Procedure	Q'ty	Remarks
	Disassembly Order		
(1)	Snap ring	1	
(2)	Damper cam	1	
(3)	Damper spring	4	
(4)	Alternator shaft assembly	—	Press the alternator shaft assembly out of the alternator case.
(5)	—Collar	1	
(6)	—Washer	1	
(7)	—Bearing	1	
(8)	—Alternator shaft	1	
(9)	Alternator case	1	
(10)	Oil seal	1	
	Assembly Order		
(7)	Bearing	1	Page 9-13.
(8)	Alternator shaft	1	
(6)	Washer	1	
(5)	Collar	1	
(3)	Damper spring	4	
(2)	Damper cam	1	
(1)	Snap ring	1	
(10)	Oil seal	1	

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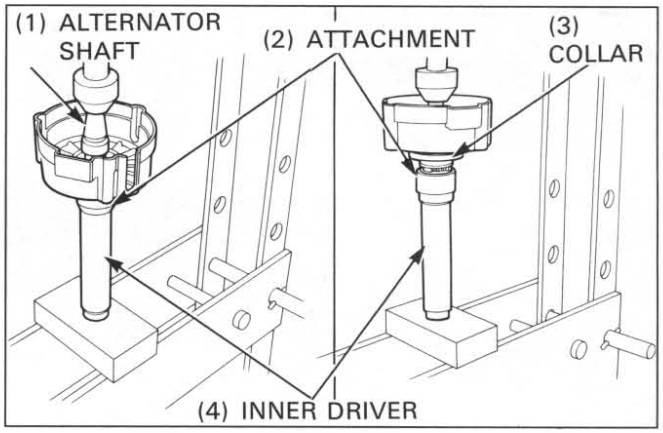
Alternator Shaft Assembly

Drive a new bearing in the alternator case.

S TOOL

Attachment, 42×47 mm	**07746-0010300**
Pilot, 20 mm	**07746-0040500**
Driver	**07749-0010000**



Support the case bearing with special tools and press the alternator shaft into the bearing.

S TOOL

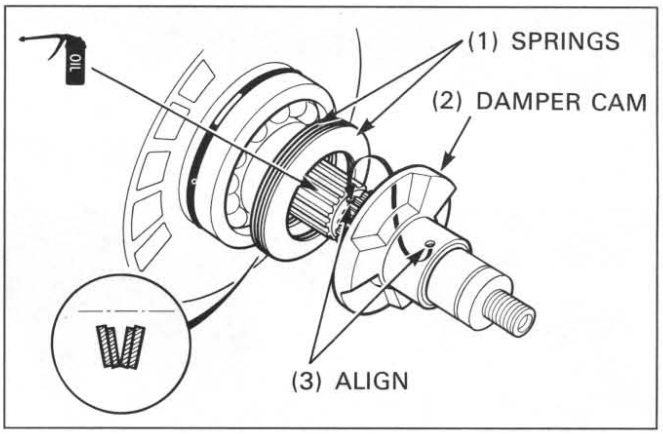
Attachment, 20 mm I.D.	**07746-0020400**
Driver, 22 mm I.D.	**07746-0020100**

Install the washer.
Support the collar with special tools and press the alternator shaft into the collar.

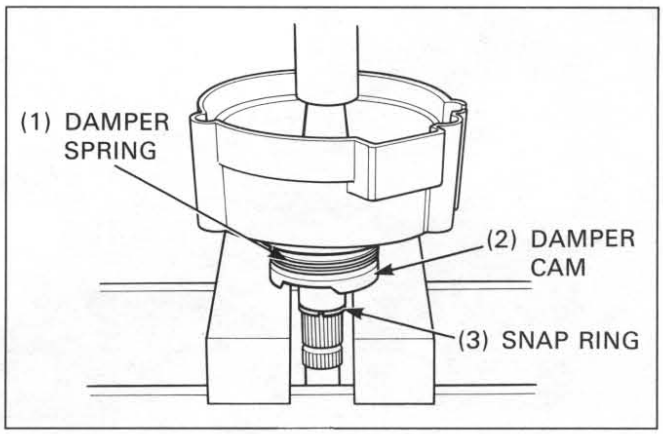
S TOOL

Attachment, 20 mm I.D.	**07746-0020400**
Driver, 22 mm I.D.	**07746-0020100**

Install the four damper springs with the dished faces facing each other as shown.
Install the damper cam onto the alternator shaft, aligning the oil holes in the damper cam and shaft.



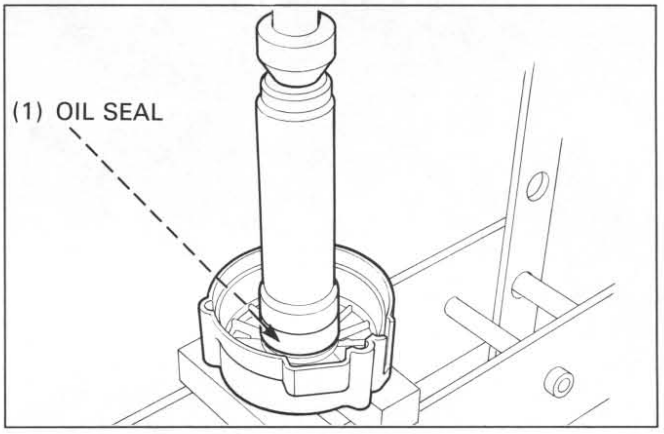
Place the alternator shaft/case in the hydraulic press with the damper cam supported.
Compress the damper spring and secure the damper cam with the snap ring.



Support the case and press a new oil seal into the case using the special tool.

S TOOL

Attachment, 30 mm I.D.	**07746-0030300**
Driver, 40 mm I.D.	**07746-0030100**



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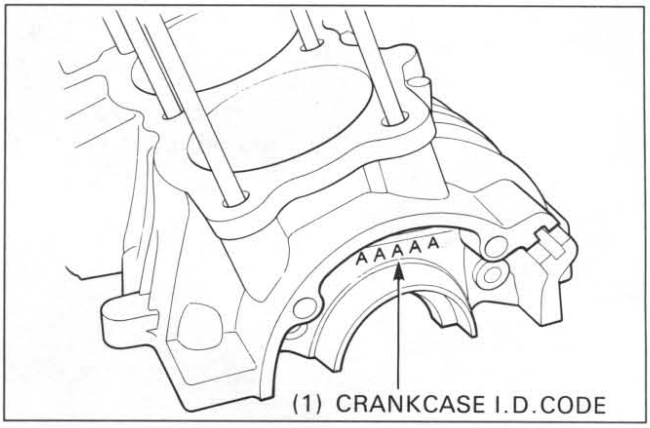
Crankshaft Bearing Replacement

Main Journal Bearing Selection

Record the crankcase I.D. code letters from the left side of the crankcase.

NOTE

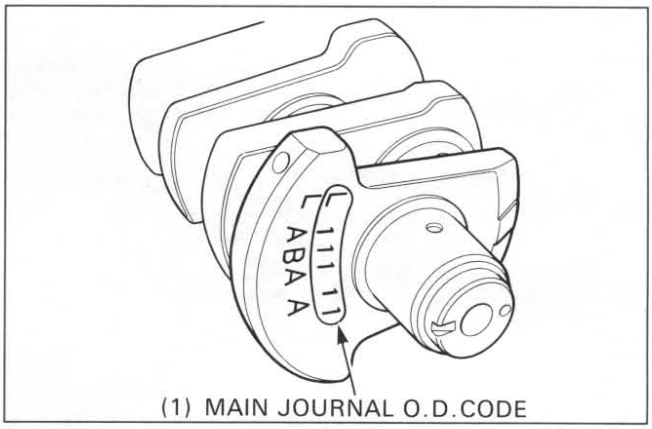
- The letters (A or B) on the upper crankcase are the codes for the main journal I.D.s, reading from the left.



Record the corresponding main journal O.D. code numbers from the crank weight.

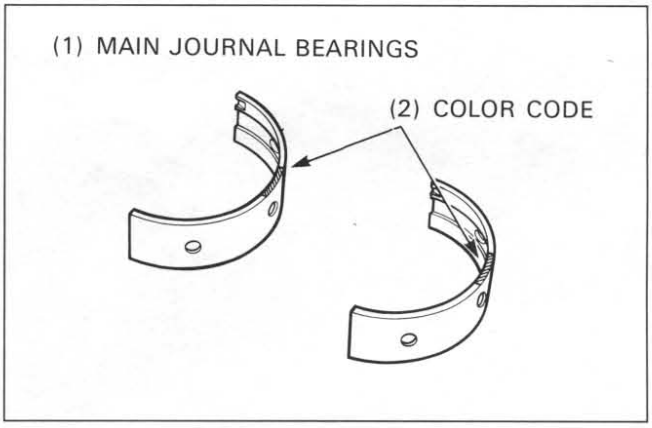
NOTE

- The numbers (1 or 2) on the crank weight are the codes for the main journal O.D.s, reading from the left.



Cross reference the case and journal codes to determine the replacement bearing color code.

Crankcase I. D. code	Main journal O.D. code	1	2
		35.992—36.000 mm (1.4170—1.4173 in)	35.984—35.992 mm (1.4166—1.4170 in)
A	39.000-39.008 mm (1.5354-1.5357 in)	Red	Pink
B	39.008-39.015 mm (1.5357-1.5360 in)	Pink	Yellow



Bearing thickness

Yellow: Thick
Pink: ↕
Red Thin

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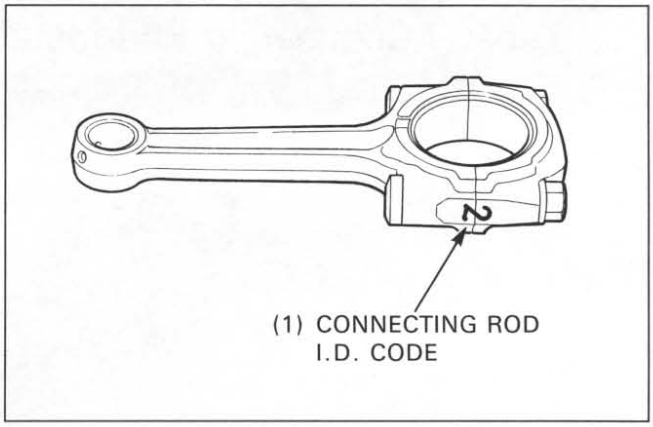
Connecting Rod Bearing Selection

Record the connecting rod I.D. code numbers on the rod.

NOTE

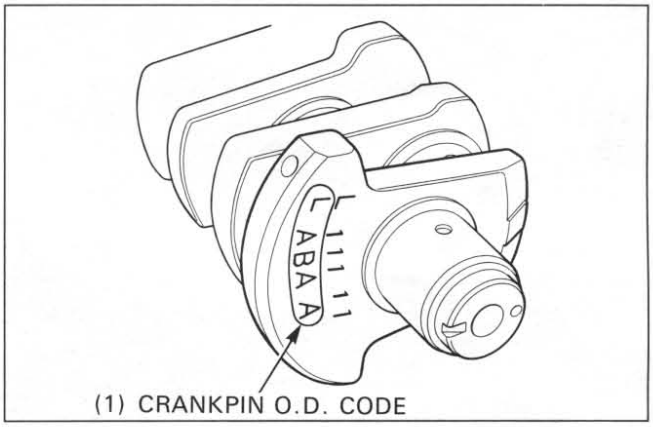
- The numbers (1 or 2) on the connecting rod are the codes for the connecting rod I.D.s.



Record the crankpin O.D. code letters from the crank weight.

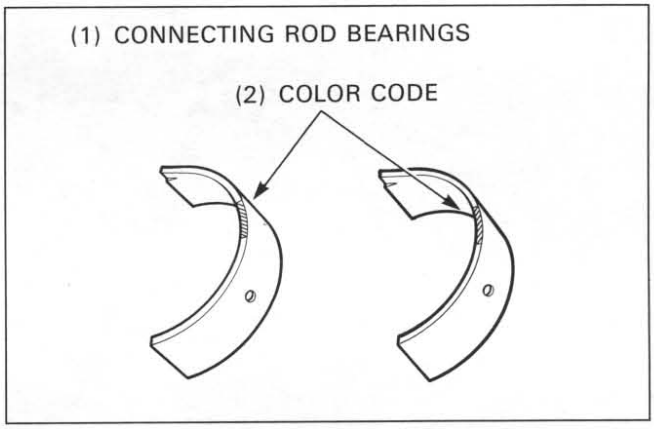
NOTE

- The letters (A or B) on the crank weight are the codes for the crankpin O.D.s, reading from the left.



Cross reference the crankpin and rod codes to determine the replacement bearing color code.

Connecting rod I.D. code		Crankpin O.D. code: A	Crankpin O.D. code: B
		35.992—36.000 mm (1.4170—1.4173 in)	35.984—35.992 mm (1.4166—1.4170 in)
1	39.000—39.008 mm (1.5354—1.5357 in)	Yellow	Green
2	39.008—39.016 mm (1.5357—1.5360 in)	Green	Brown



Bearing thickness

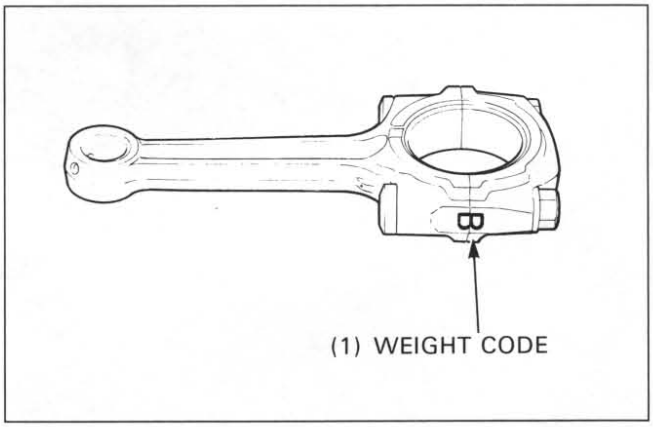
Brown: Thick
Green: ↕
Yellow: Thin

Connecting Rod Replacement

Be sure to use the connecting rods having the same weight code in an engine.

CAUTION

- **If a connecting rod having the differet weight code is to be used, be sure that the difference in weight (code) is held within a single weight rank.**



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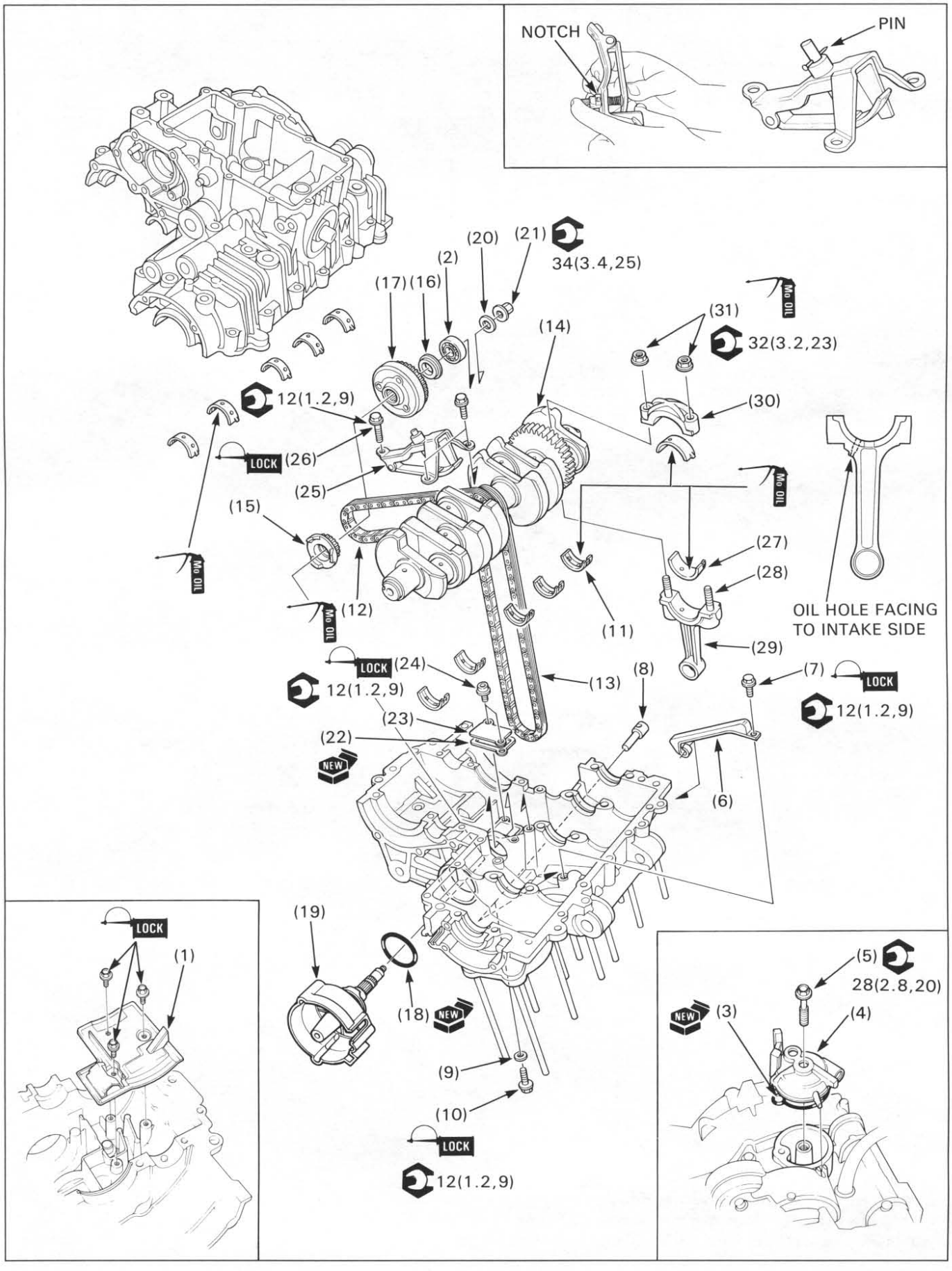
Crankshaft, Connecting Rod Installation



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NOTE

- At installation, apply molybdenum disulfide oil to the main journal bearing and connecting rod bearing surface.

Requisite Service

- Crankshaft, connecting rod removal (page 9-10)

	Procedure	Q'ty	Remarks
	Installation Order		
(1)	Crankcase breather separator	1	
(2)	Alternator shaft bearing (6203)	1	To install use driver (07949-3710001) and attachment, 37 x 40 mm (07746-0010200) and pilot, 17 mm (07746-0040400).
(3)	O-ring	1	
(4)	Air separator cover	1	Align the separator cover tang with the slot in the upper crankcase.
(5)	Air separator cover bolt	1	
(6)	Alternator drive chain slipper	1	
(7)	Alternator drive chain slipper bolt	1	
(8)	Alternator drive chain slipper pin	1	
(9)	Washer	1	
(10)	Alternator drive chain slipper pin bolt	1	
(11)	Crankshaft main journal bearing	10	• Wipe all oil from the bearing seating areas. • Align the bearing tabs with the groove in the crankcase.
(12)	Alternator drive chain	1	
(13)	Cam chain	1	
(14)	Crankshaft	1	
(15)	Alternator driven sprocket	1	
(16)	Collar	1	
(17)	Starter clutch assembly	1	
(18)	O-ring	1	
(19)	Alternator shaft assembly	1	
(20)	Washer	1	
(21)	Alternator shaft nut	1	Installation (page 9-11)
(22)	Gasket	1	
(23)	Oil chamber cover	1	
(24)	Oil chamber cover bolt	2	
(25)	Alternator drive chain tensioner	1	Push the notch on the chain tensioner with a screwdriver and squeeze the tensioner until the hole in the rod appears. Insert a pin into the hole to lock the tensioner.
(26)	Alternator drive chain tensioner bolt	3	After tightening, remove the tensioner lock pin.
(27)	Connecting rod bearing	8	• Wipe all oil from the bearing seating areas. • Align the bearing oil hole with the oil hole in the connecting rod.
(28)	Connecting rod bolt	8	
(29)	Connecting rod	4	Face the oil holes to the intake side.
(30)	Bearing cap	4	Install them with the code letters read properly.
(31)	Connecting rod bearing cap nut	8	At installation, apply molybdenum disulfied oil to the threads and torque them in 2 or 3 steps.

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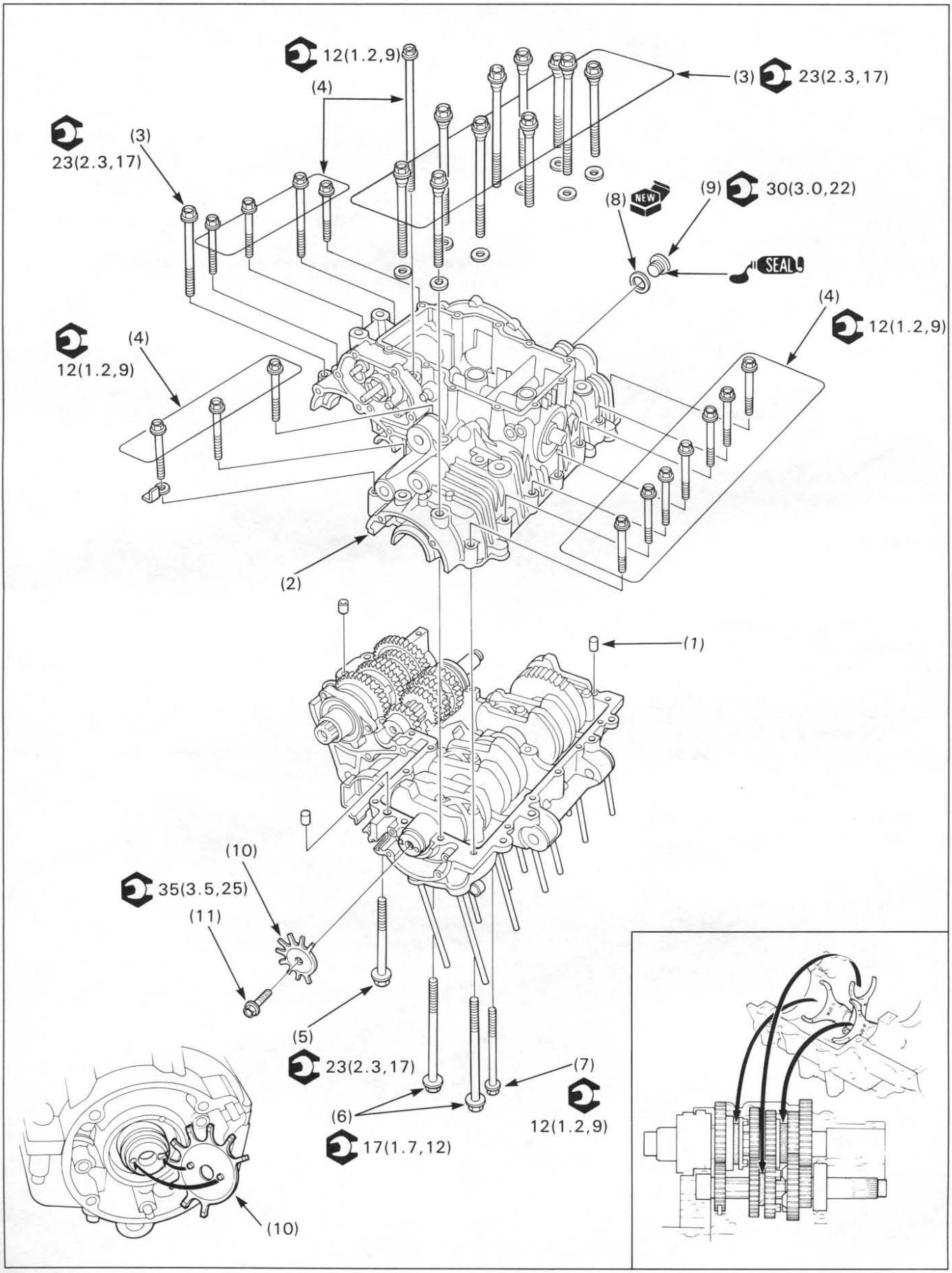
Crankcase Installation



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Requisite Service

- Crankshaft, connecting rod installation (page 9-16)
- Transmission removal/installation (page 9-6)

Procedure		Q'ty	Remarks
(1)	Dowel pin	3	
(2)	Lower crankcase	1	Crankcase installation (see next page)
(3)	Lower crankcase bolt (8 mm)	11	
(4)	Lower crankcase bolt (6 mm)	15	
(5)	Upper crankcase bolt (8 mm)	1	
(6)	Upper crankcase bolt (7 mm)	2	
(7)	Upper crankcase bolt (6 mm)	1	
(8)	Sealing washer	1	
(9)	Sealing bolt	1	
(10)	Ignition pulse generator rotor	1	
(11)	Ignition pulse generator rotor bolt	1	

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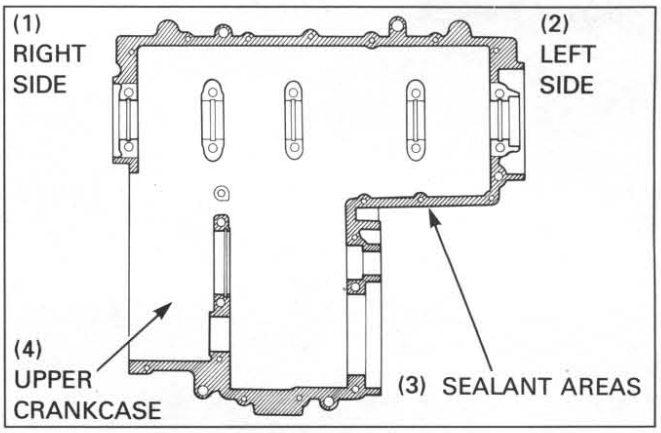
Crankcase Installation

Apply a light but thorough coating of sealant to the upper crankcase mating surface except to the main bearing journal bolt mating areas as shown.

Assemble the crankcase.



Install the crankcase bolts and sealing washers.

NOTE

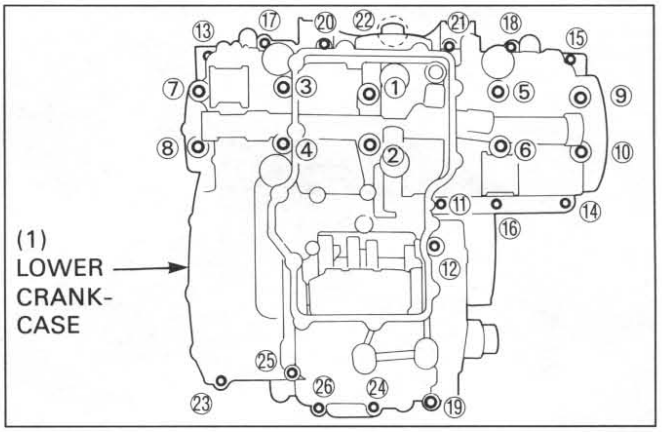
- Ten 8 mm bolts (for the crankshaft main journals) have sealing washers.

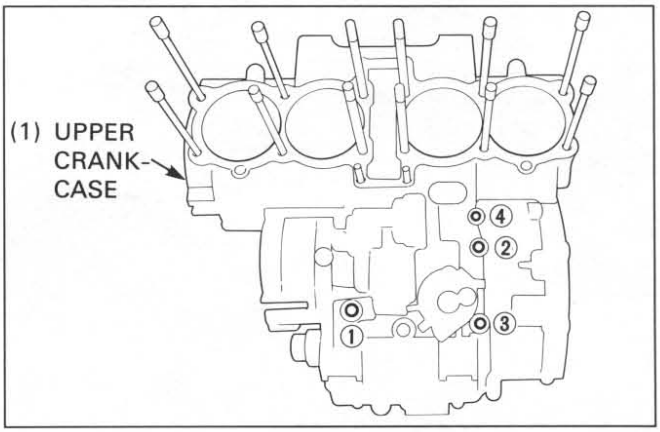
Tighten all crankcase bolts in a gradual, crisscross pattern, beginning with larger diameter bolts first as shown.

Torque:

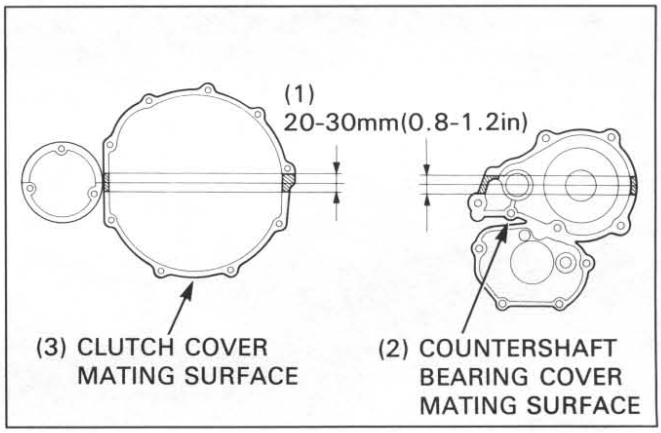
8 mm crankcase bolt: 23 N·m (2.3 kg-m, 17 ft-lb)

6 mm crankcase bolt: 12 N·m (1.2 kg-m, 9 ft-lb)





Apply a sealant to the countershaft bearing cover and clutch cover mating surfaces as shown.



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10. Front Wheel/Suspension/Steering

Service Information

Brake dust may contain asbestos fibers.
Never use an air hose or dry brush to clean brake assemblies. Use an OSHA-approved vacuum cleaner or alternate method approved by OSHA, designed to minimize the hazard caused by airborne asbestos fibers.

⚠WARNING

- **Inhaled asbestos fiber have been found to cause respiratory disease and cancer.**

Keep grease off of brake disc and pads.

CAUTION

- **A contaminated brake disc or pad reduces stopping power. Discard contaminated pads and clean a contaminated disc with a high quality brake degreasing agent.**

- Refer to section 12 for brake system information.
- Refer to section 16 for light, meter and switch information.
- Tubeless tire removal, repair, and remounting procedures are covered in section 16 of the Common Service Manual.
- When servicing the front wheel, fork or steering stem, support the motorcycle securely with a jack or other support. Do not use the oil filter as a jack point.

Troubleshooting

Hard Steering
- Steering head bearing adjustment nut too tight
- Faulty steering head bearings
- Insufficient tire pressure
- Faulty tire

Steers To One Side Or Does Not Track Straight
- Bent fork
- Bent front axle
- Wheel installed incorrectly
- Faulty steering head bearings
- Bent frame
- Worn wheel bearing
- Worn swingarm pivot components

Front Wheel Wobbling
- Bent rim
- Worn front wheel bearings
- Faulty tire
- Unbalanced tire and wheel

Wheel Turns Hard
- Faulty wheel bearing
- Faulty speedometer gear
- Bent front axle

Soft Suspension
- Insufficient fluid in fork
- Weak springs
- Low fluid level in fork
- Low tire pressure

Hard Suspension
- Incorrect fluid weight
- Bent fork tubes
- Clogged fluid passage
- High tire pressure

Front Suspension Noisy
- Insufficient fluid in fork
- Loose fork fasteners
- Lack of grease in speedometer gear

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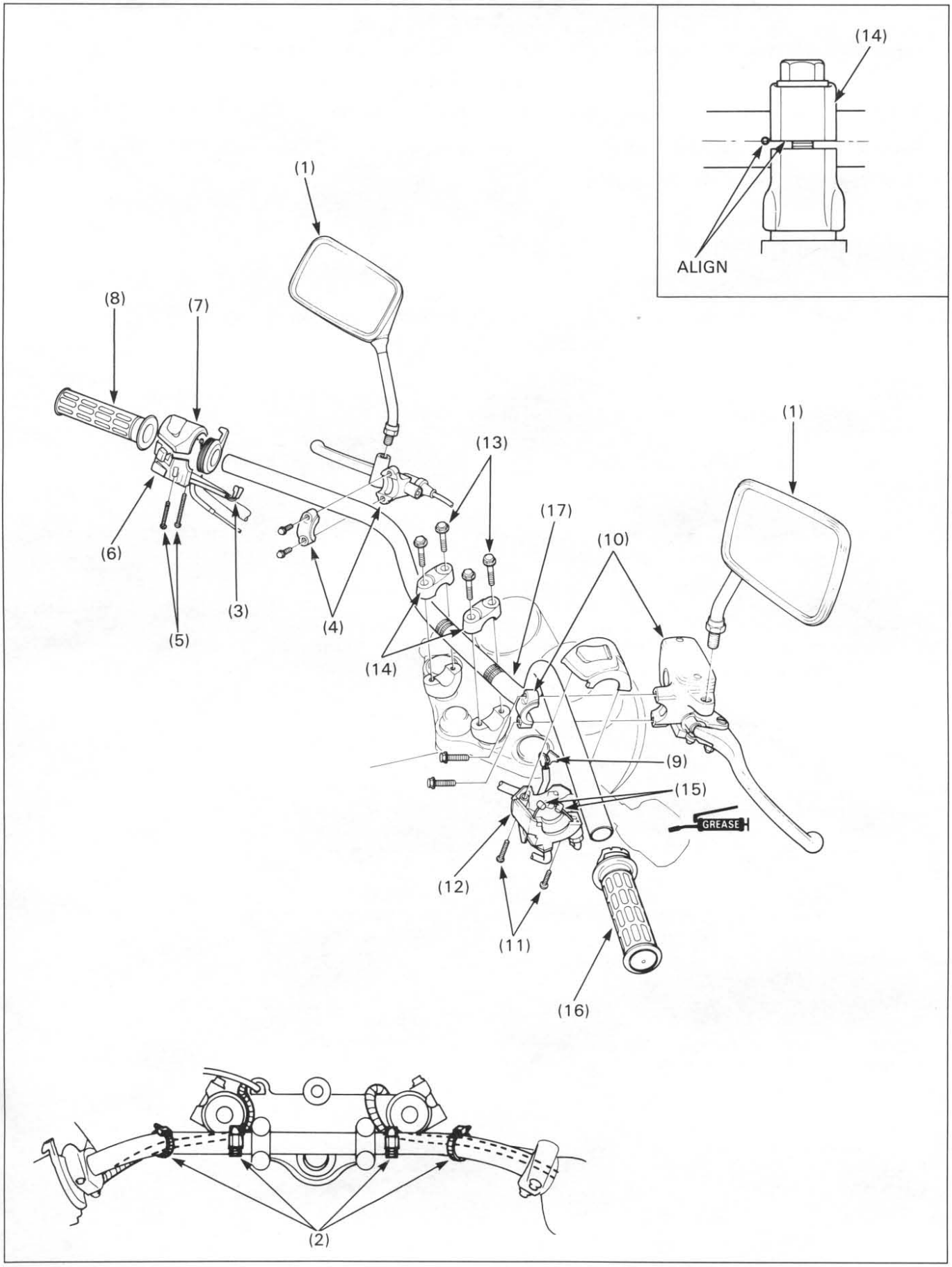
Handlebar Removal/Installation



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NOTE

- Using wires, hang the front brake master cylinder at least as high as the position it was oringinally installed at to prevent air from getting into the master cylinder. Do not twist the brake hose.
- Route the cables and wire harnesses properly (page 1-21).
- After installing the handlebar, adjust-
  - the throttle cable
  - the clutch cable
  - the choke cable

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Rearview mirror	2	
(2)	Wire band	4	
(3)	Clutch switch connector	2	
(4)	Clutch lever assembly	1	Align the holder end with the punch mark on the handlebar and face the holder "UP" mark upward. Tighten the upper bolt first, then the lower bolt.
(5)	Left handlebar switch housing screw	2	Tighten the front screw first, then the rear screw.
(6)	Left handlebar switch housing	1	
(7)	Choke cable end	1	
(8)	Handlebar grip	1	Apply Honda Bond A or Honda Hand Grip Cement (U.S.A. only) to the inside surface of the grip.
(9)	Brake light switch connector	2	
(10)	Master cylinder	1	Align the holder end with the punch mark on the handlebar and face the holder "UP" mark upward. Tighten the upper bolt first, then the lower bolt.
(11)	Right handlebar switch housing screw	2	Tighten the front screw first, then the rear screw.
(12)	Right handlebar switch housing	1	
(13)	Handlebar holder bolt	4	Tighten the front bolts first, then the rear bolts.
(14)	Handlebar holder	2	Install the upper holder with its punch mark facing forward.
(15)	Throttle cable end	2	
(16)	Throttle pipe	1	
(17)	Handlebar	1	Place the handlebar onto the lower holder and align the punch marks on the handlebar with lower surface of the handlebar holder.

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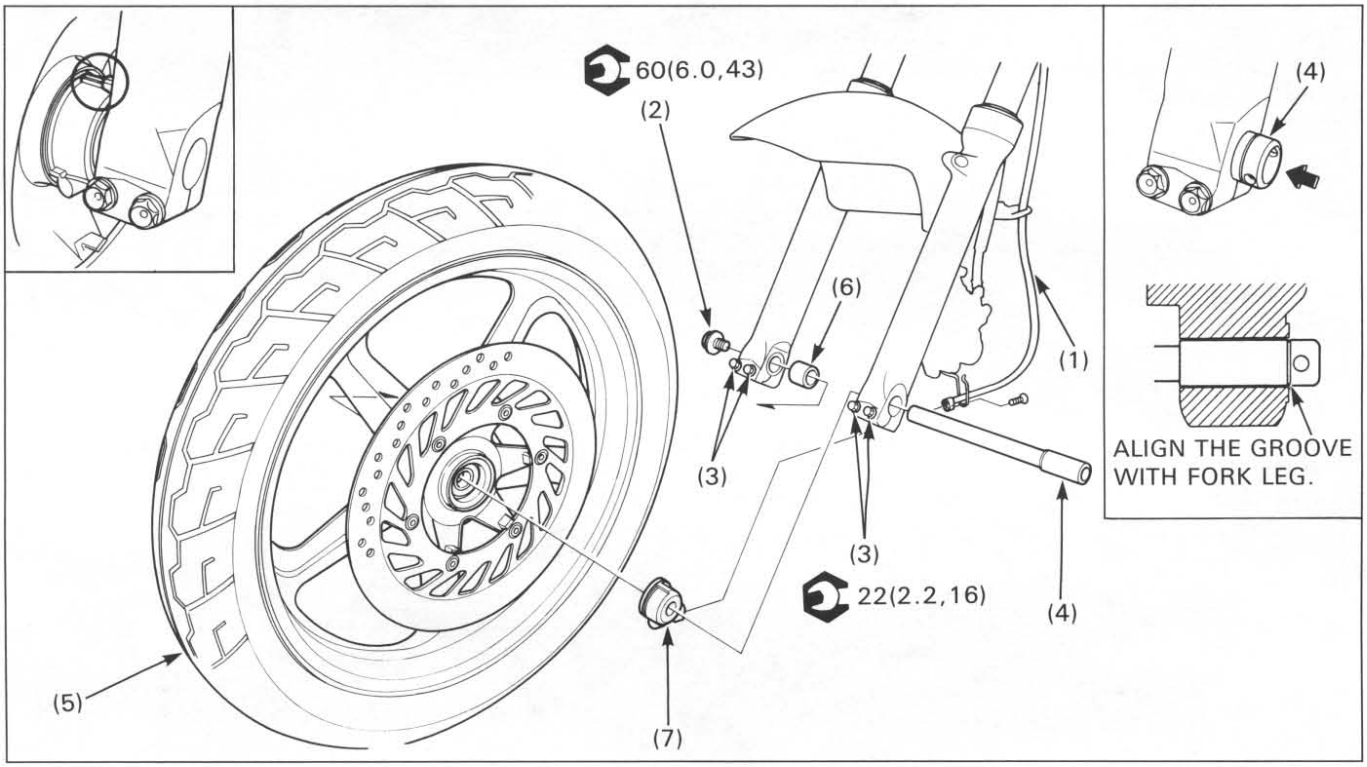
Front Wheel Removal/Installation



Brake dust may contain asbestos fibers.
Never use an air hose or dry brush to clean brake assemblies. Use an OSHA-approved vacuum cleaner or alternate method approved by OSHA, designed to minimize the hazard caused by airborne asbestos fibers.

⚠ WARNING

- **Inhaled asbestos fiber have been found to cause respiratory disease and cancer.**

Keep grease off of brake disc and pads.

CAUTION

- **A contaminated brake disc or pad reduces stopping power. Discard contaminated pads and clean a contaminated disc with a high quality brake degreasing agent.**
- **Do not use the oil filter as a jack point.**

NOTE

- Do not squeeze the brake lever when the caliper is removed, or it will be defficult to refit the disc between the brake pads.

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Speedometer cable	1	
(2)	Axle bolt	1	
(3)	Axle pinch bolt	4	
(4)	Front axle	1	At installation, apply a thin coating of grease to the front axle. Insert the axle through the fork leg. Align the groove in the axle with the outer surface of the fork leg.
(5)	Front wheel assembly	1	At installation, align the projection of the speedometer gear box with the projection on the fork leg.
(6)	Side collar	1	
(7)	Speedometer gear box assembly	1	

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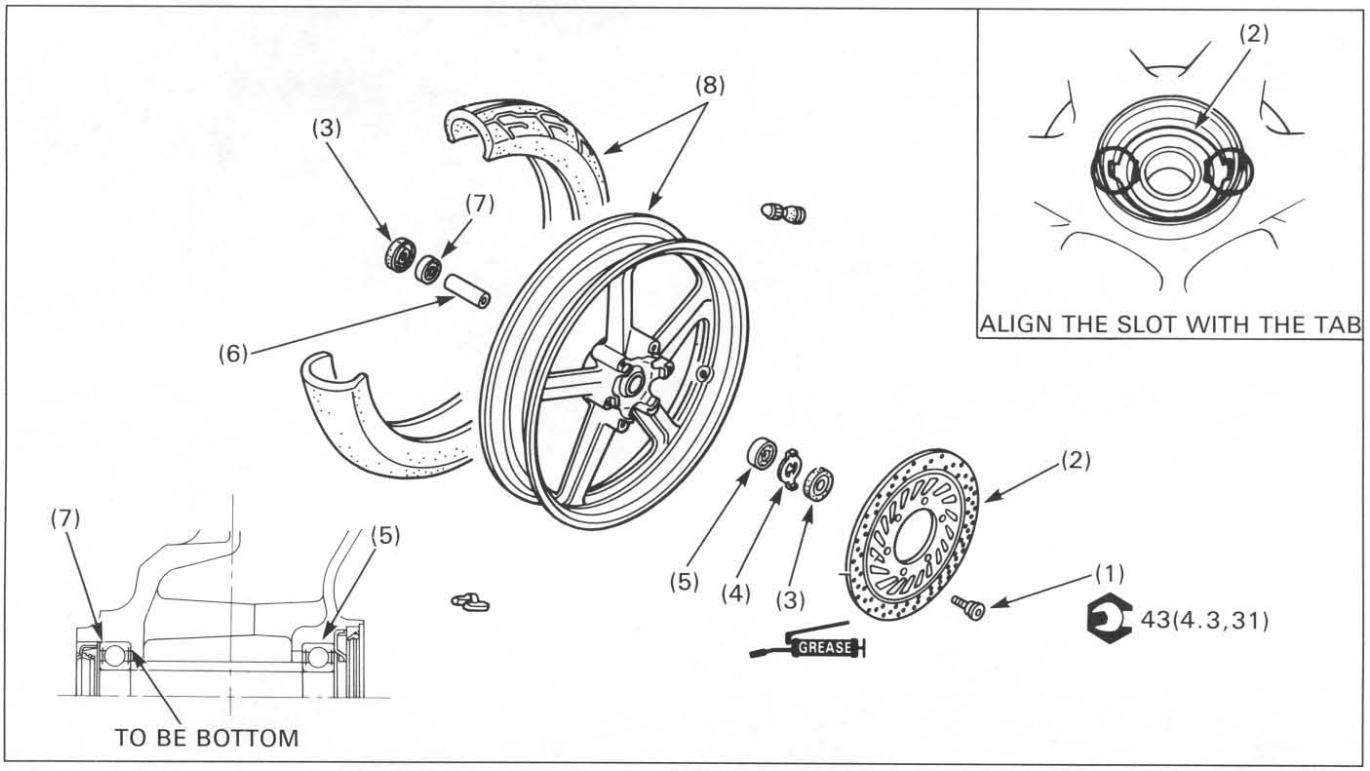
Front Wheel Disassembly/Assembly



Brake dust may contain asbestos fibers.
Never use an air hose or dry brush to clean brake assemblies. Use an OSHA-approved vacuum cleaner or alternate method approved by OSHA, designed to minimize the hazard caused by airborne asbestos fibers.

⚠ WARNING

- **Inhaled asbestos fiber have been found to cause respiratory disease and cancer.**

Keep grease off of brake disc and pads.

CAUTION

- **A contaminated brake disc or pad reduces stopping power. Discard contaminated pads and clean a contaminated disc with a high quality brake degreasing agent.**

NOTE

- Always replace wheel bearings as a set.
- For wheel bearing replacement, refer to section 1 of the Common Service Manual.

Requisite Service

- Front wheel removal/installation (page 10-4)

	Procedure	Q'ty	Remarks
	Disassembly Order		Assembly is in the reverse order of disassembly.
(1)	Brake disc bolt	6	
(2)	Brake disc	1	Install with the stamped side outward as shown.
(3)	Dust seal	2	At installation, apply grease to the dust seal lips.
(4)	Speedometer gear retainer	1	
(5)	Left wheel bearing (6004 UU)	1	
(6)	Distance collar	1	
(7)	Right wheel bearing (6004 UU)	1	At assembly, drive in the right side bearing first, then the left side bearing.
(8)	Front wheel/tire	1/1	

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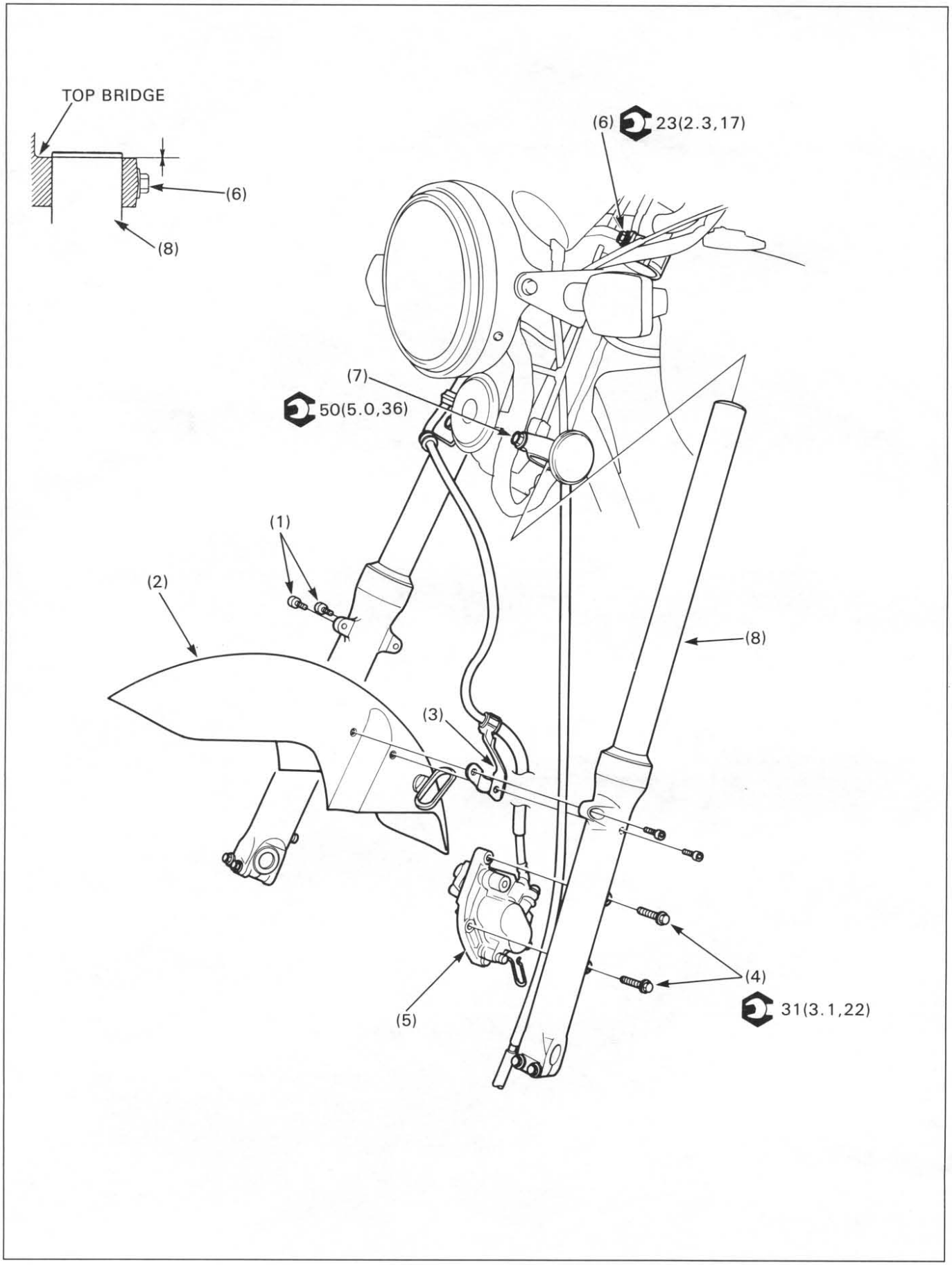
Fork Removal/Installation



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CAUTION

- **Support the removed caliper with a piece of wire so that it does not hang from the brake hose. Do not twist the brake hose.**

NOTE

- Do not squeeze the brake lever when the caliper is removed, or it will be difficult to refit the disc between the brake pads.
- Before removing the fork, loosen the fork cap but do not remove it.

Requisite Service

- Front wheel removal/installation (page 10-4)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Front fender bolt	4	
(2)	Front fender	1	
(3)	Brake hose clamp	1	
(4)	Caliper bracket bolt	2	
(5)	Caliper assembly	1	
(6)	Fork pinch bolt (upper)	2	Only loosen the bolts.
(7)	Fork pinch bolt (lower)	2	Only loosen the bolts.
			If the fork legs were disassembled, temporarily tighten the bottom pinch bolt and tighten the fork cap.
(8)	Fork assembly	2	

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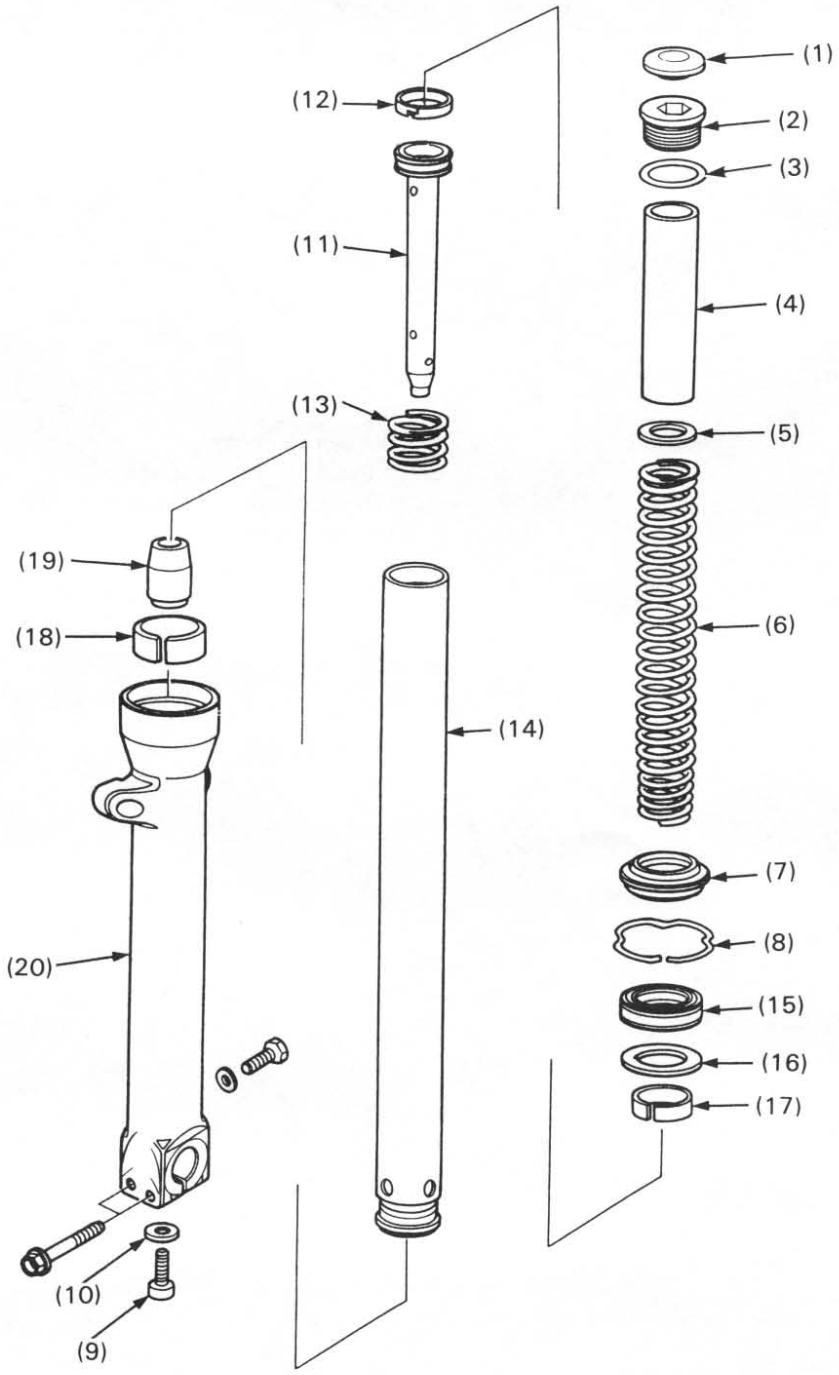
Fork Disassembly



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⚠ WARNING

- **The fork cap is under spring pressure. Use care when removing it and face protection.**

NOTE

- Temporarily install the fork spring, spacer, and fork cap if the socket bolt turns with the fork piston, during socket bolt removal.
- Always replace oil seal with new one.

Requisite Service

- Fork removal (page 10-6)

Procedure		Q'ty	Remarks
(1)	Fork cap cover	1	
(2)	Fork cap	1	
(3)	O-ring	1	
(4)	Spacer	1	
(5)	Spring seat	1	
(6)	Fork spring	1	After removing, pour out any remaining fork oil.
(7)	Dust seal	1	When removing, do not damage the fork tube.
(8)	Stopper ring	1	
(9)	Fork socket bolt	1	
(10)	Sealing washer	1	
(11)	Fork piston	1	
(12)	Fork piston ring	1	Do not remove it unless replacement is necessary.
(13)	Rebound spring	1	
(14)	Fork tube	1	
(15)	Oil seal	1	
(16)	Back up ring	1	
(17)	Slider bushing	1	
(18)	Fork tube bushing	1	Do not remove it unless replacement is necessary.
(19)	Oil lock piece	1	
(20)	Fork slider	1	

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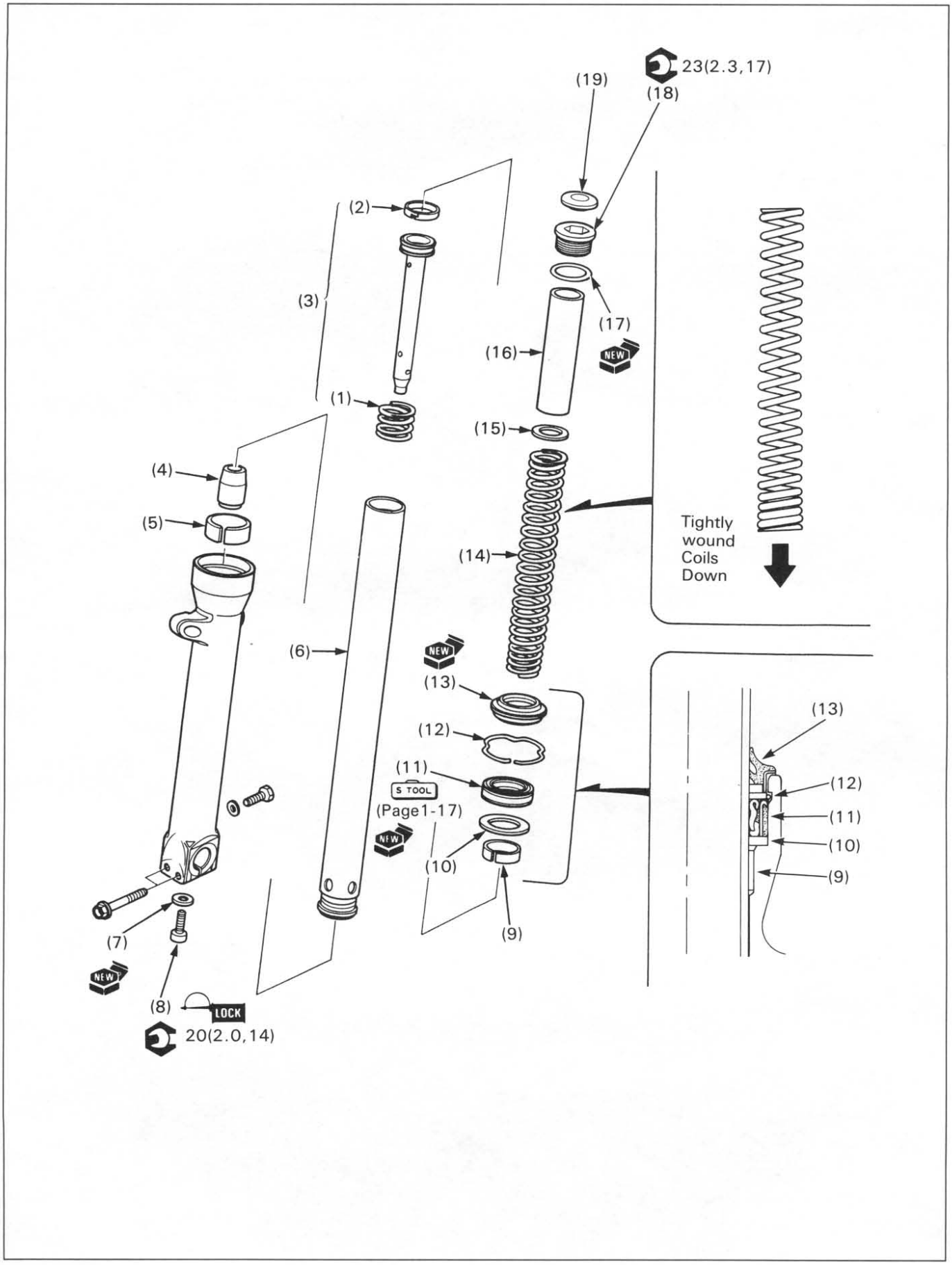
Fork Assembly



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NOTE

- Always replace the oil seal with a new one.
- Coat the new oil seal with the recommended fork oil and install it with the mark facing up.
- After assembling the fork legs, install each fork leg into the lower fork bridge first, then torque the fork cap.

Requisite Service

- Fork disassembly (page 10-8)
- Fork installation (page 10-6)

	Procedure	Q'ty	Remarks
(1)	Rebound spring	1	
(2)	Fork piston ring	1	Replace with a new one if it was removed from the piston.
(3)	Fork piston assembly	1	Insert into the fork tube.
(4)	Oil lock piece	1	Insert onto the piston.
(5)	Fork tube bushing	1	Replace with a new one if it was removed from the fork tube.
(6)	Fork tube	1	
(7)	Sealing washer	1	
(8)	Fork socket bolt	1	If the socket bolt turns with the fork piston, temporarily install the fork spring, spacer and fork cap, then tighten the socket bolt.
(9)	Slider bushing	1	
(10)	Back up ring	1	
(11)	Oil seal	1	• Wrap vinyl or plastic tape around the fork tube top end to avoid damaging the oil seal during installation. • Use fork seal driver (07947-KA50100) and attachment (07947-KF00100) for fork seal installation.
(12)	Stopper ring	1	
(13)	Dust seal	1	After installing, compress the fork tube fully and pour the specified amount of fork fluid (page 1-11) into the fork tube.
(14)	Fork spring	1	Wipe all oil off the spring thoroughly using a clean lint free cloth and install with tightly wound coil end facing down.
(15)	Spring seat	1	
(16)	Spacer	1	
(17)	O-ring	1	Apply oil to the new O-ring.
(18)	Fork cap	1	**CAUTION** • **Be careful not to cross-thread the fork cap.** • **Screw in the cap, but do not tighten yet.**
(19)	Fork cap	1	

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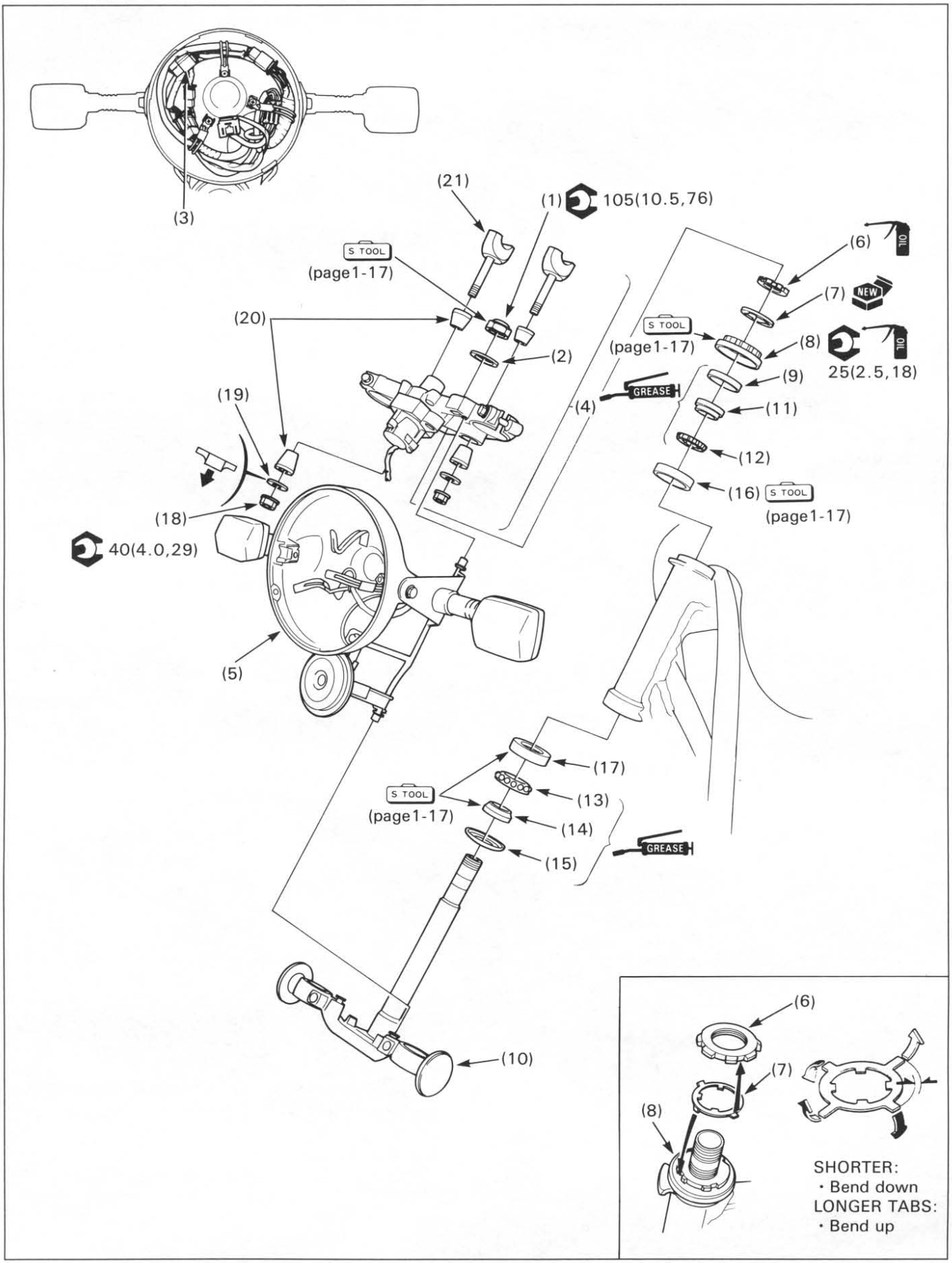
Steering Stem Removal/Installation



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NOTE

- Replace the bearings and races as a set.
- At installation, apply grease to all bearing surfaces.
- Check the steering head bearing preload (page 1-11) after torquing the stem nut.

Repuisite Service

- Fork removal/installation (page 10-6)
- Handlebar removal/installation (page 10-2)
- Meter removal/installation (page 16-5)

	Procedure	Q'ty	Remarks
	Removal Order		
(1)	Steering stem nut	1	After removing, remove the fork tubes.
(2)	Thrust washer	1	
(3)	Ignition switch connector	1	Disconnect inside the headlight case (page 1-21).
(4)	Top bridge assembly	1	
(5)	Headlight/Stay assembly	1	Support with a piece of wire so it dose not hang from the cable or wire harness.
(6)	Lock nut	1	Remove, after straightening the lock washer tabs.
(7)	Lock washer	1	
(8)	Steering head bearing adjustment nut	1	Use steering stem socket 07916-3710100
(9)	Dust seal	1	
(10)	Steering stem	1	
(11)	Upper bearing inner race	1	
(12)	Upper bearing	1	
(13)	Lower bearing	1	
(14)	Lower bearing inner race	1	Replace if removed.
(15)	Dust seal	1	• Use race remover attachment (07953-MJ1010A) with driver (07949-3710001) and attachment, 37x40 mm (07746-0010201) for upper outer race removal.
(16)	Upper bearing outer race	1	
(17)	Lower bearing outer race	1	• Use race remover (07946-3710500) for lower outer race removal.
(18)	Handlebar holder nut	2	
(19)	Washer	2	
(20)	Handlebar holder cushion	4	
(21)	Handlebar holder	2	
	Installation Order		
(20)	Handlebar holder cushion	4	
(21)	Handlebar holder	2	
(19)	Washer	2	
(18)	Handlebar holder nut	2	After installing handlebar, torque the nuts.
(17)	Lower bearing outer race	1	Replace as a set, if necessary.
(16)	Upper bearing outer race	1	• Use attachment, 52×55mm (07746-0010400) and driver (07749-0010000) for lower outer race installation.
(15)	Dust seal	1	
(14)	Lower bearing inner race	1	
(13)	Lower bearing	1	• Use attachment, 42×47mm (07746-0010300) and driver (07749-0010000) for upper outer race installation.
(12)	Upper bearing	1	
(11)	Upper bearing inner race	1	• Use steering stem driver (07946-MB00000) for lower inner race installation.
(10)	Steering stem	1	
(9)	Dust seal	1	
(8)	Steering head bearing adjustment nut	1	Installation : refer to section 18 of the Common Service Manual (Retainer-Type Ball Bearings).
(7)	Lock washer	1	
(6)	Lock nut	1	
(5)	Headlight/Stay assembly	1	
(4)	Top bridge assembly	1	
(3)	Ignition switch connector	1	
(2)	Thrust washer	1	
(1)	Steering stem nut	1	Temporarily install fork and torque the nut.

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MEMO

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11. Rear Wheel/Suspension

Service Information

Brake dust may contain asbestos fibers.
Never use an air hose or dry brush to clean brake assemblies. Use an OSHA-approved vacuum cleaner or alternate method approved by OSHA, designed to minimize the hazard caused by airborne asbestos fibers.

⚠WARNING

- **Inhaled asbestos fiber have been found to cause respiratory disease and cancer.**

Keep grease off of brake drum and shoes.

CAUTION

- **A contaminated brake drum or shoe reduces stopping power. Discard contaminated shoes and clean a contaminated disc with a high quality brake degreasing agent.**

- Tubeless tire removal, repair, and remounting procedures are covered in the section 16 of the Common Service Manual.
- For rear wheel, shock absorber or swingarm removal, a hoist or other support is required to support the motorcycle.
- Refer to section 12 for brake system information.

Troubleshooting

Soft Suspension
- Weak spring
- Oil leakage from damper unit
- Incorrect suspension adjustment
- Low tire pressure

Hard Suspension
- Incorrect suspension adjustment
- Bent swingarm pivot
- Damaged swingarm pivot bearings
- Bent damper rod
- High tire pressure

Steers To One Side Or Does Not Track Straight
- Bent rear axle
- Axle alignment/chain adjustment not equal on both sides

Rear Wheel Wobbling
- Bent rim
- Worn rear wheel bearings
- Faulty tire
- Unbalanced tire and wheel
- Low tire pressure
- Faulty swingarm pivot bearings

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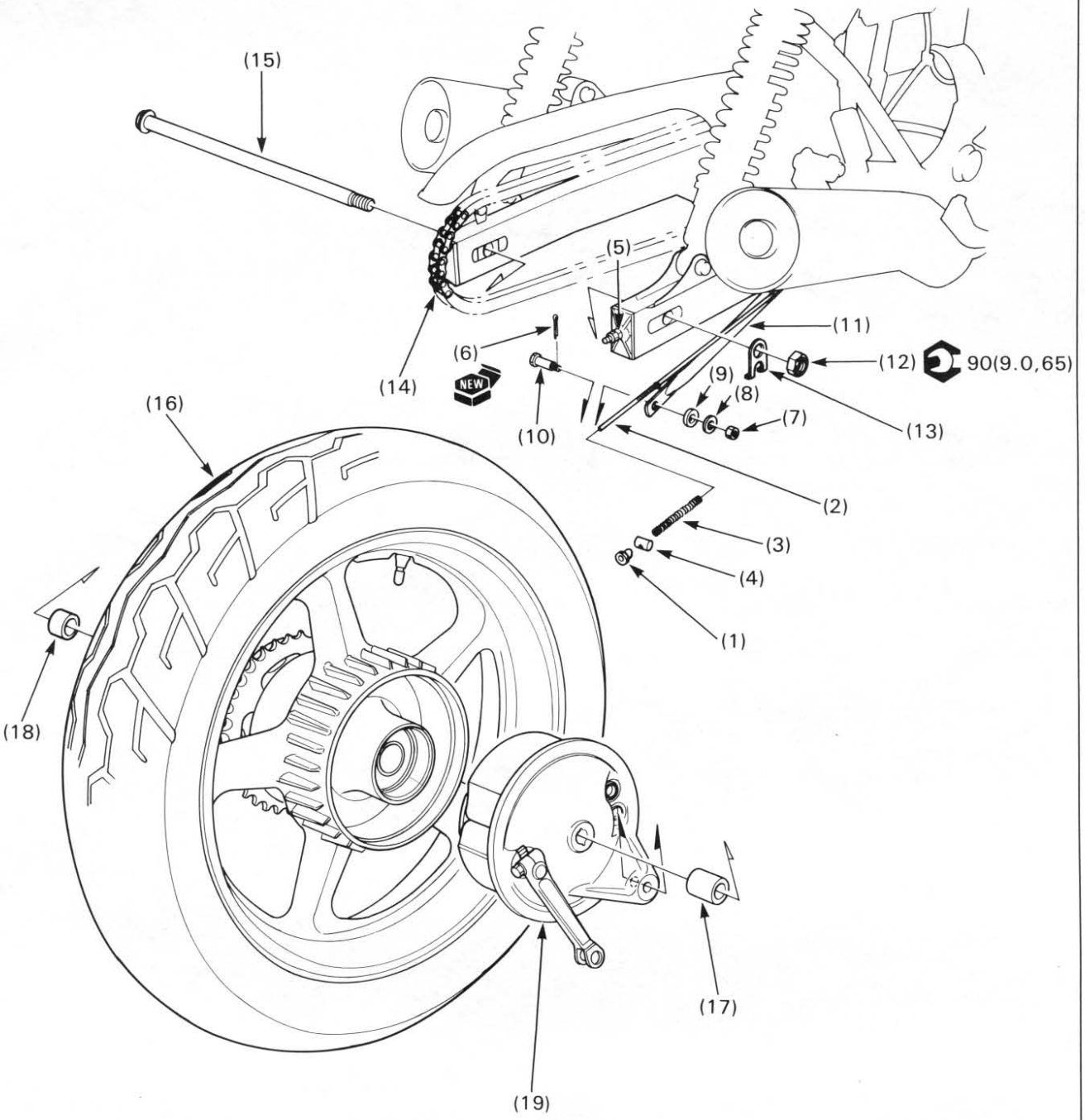
Rear Wheel Removal/Installation



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⚠WARNING

- **Inhaled asbestos fiber have been found to cause respiratory disease and cancer.**

Keep grease off of brake drum and shoes.

CAUTION

- **A contaminated brake drum or shoe reduces stopping power. Discard contaminated shoes and clean a contaminated disc with a high quality brake degreasing agent.**

NOTE

- For rear wheel removal, a hoist or other support is required to support the motorcycle.
- Adjust the drive chain free play after installing the wheel.

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Brake adjusting nut	1	
(2)	Brake rod	1	
(3)	Spring	1	
(4)	Brake rod joint piece	1	
(5)	Drive chain adjusting nut	2	Loosen the adjusting nut fully.
(6)	Cotter pin	1	
(7)	Nut	1	
(8)	Washer	1	
(9)	Rubber cushion	1	
(10)	Brake stopper arm pivot bolt	1	
(11)	Brake stopper arm	1	
(12)	Rear axle nut	1	
(13)	Drive chain adjuster	1	
(14)	Drive chain	1	Move the rear wheel forward and derail the drive chain from the driven sprocket.
(15)	Rear axle	1	
(16)	Rear wheel assembly	1	
(17)	Right side collar	1	
(18)	Left side collar	1	
(19)	Brake panel assembly	1	Disassembly (page 12-7).

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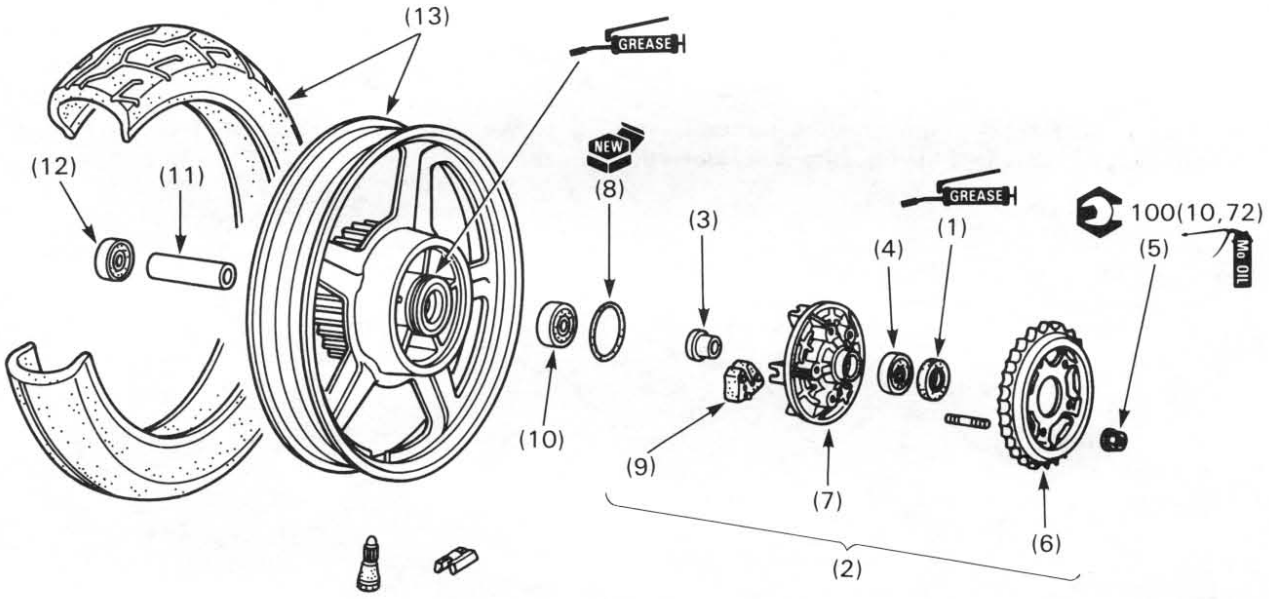
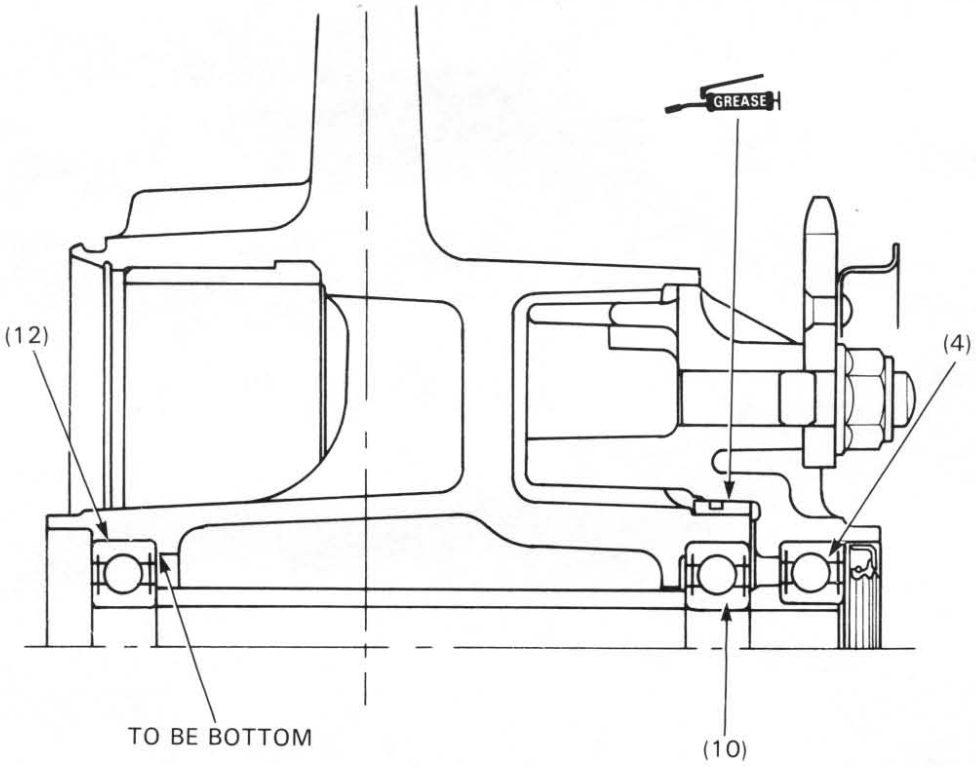
Rear Wheel Disassembly/Assembly





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⚠WARNING

- **Inhaled asbestos fiber have been found to cause respiratory disease and cancer.**

Keep grease off of brake drum and shoes.

CAUTION

- **A contaminated brake drum or shoe reduces stopping power. Discard contaminated shoes and clean a contaminated disc with a high quality brake degreasing agent.**

NOTE

- For driven sprocket removal, loosen the sprocket nuts with the driven flange installed into the wheel hub.
- Replace wheel bearings as a set.
- For wheel bearing replacement, refer to section 1 of the Common Service Manual.

Requisite Service

- Rear wheel removal/installation (page 11-2)

	Procedure	Q'ty	Remarks
	Disassembly Order		Assembly is in the reverse order of disassembly
(1)	Dust seal	1	At assembly, apply grease to the dust seal lips.
(2)	Driven flange assembly	1	
(3)	-Driven flange collar	1	
(4)	-Driven flange bearing (6204 UU)	1	
(5)	-Driven sprocket nut	5	
(6)	-Driven sprocket	1	
(7)	-Driven flange	1	
(8)	O-ring	1	
(9)	Rear wheel damper	5	
(10)	Left wheel bearing (6303 UU)	1	
(11)	Distance collar	1	
(12)	Right wheel bearing (6303 UU)	1	Drive in the right side bearing first, then the left side bearing.
(13)	Rear wheel/tire	1/1	

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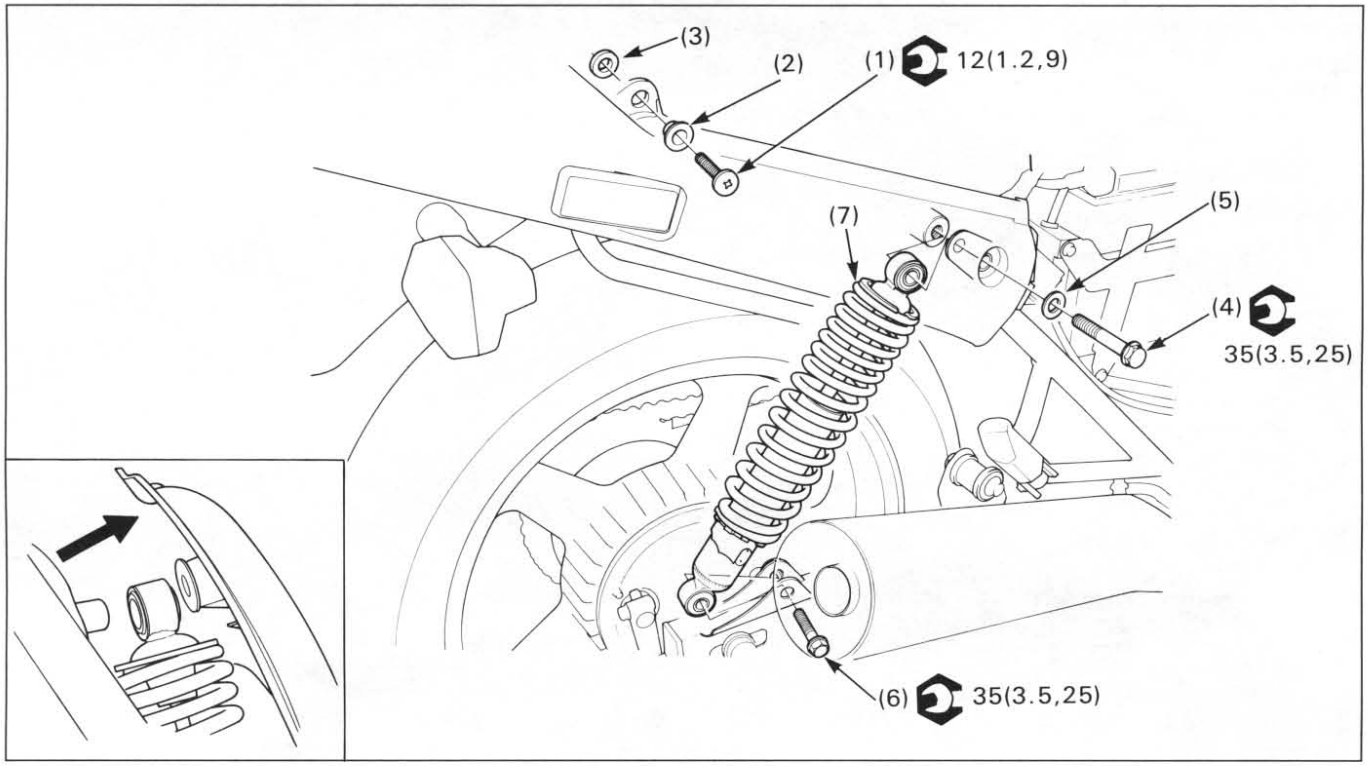
Shock Absorber Removal/Installation



NOTE

- For shock absorber removal, a hoist or other support is required to support the motorcycle.
- Adjust the shock absorber to the softest position for disassembly.

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Rear fairing screw	1	
(2)	Collar	1	
(3)	Washer	1	
(4)	Shock absorber mounting bolt (upper)	1	
(5)	Plain washer	1	
(6)	Shock absorber mounting bolt (lower)	1	
(7)	Shock absorber assembly	1	

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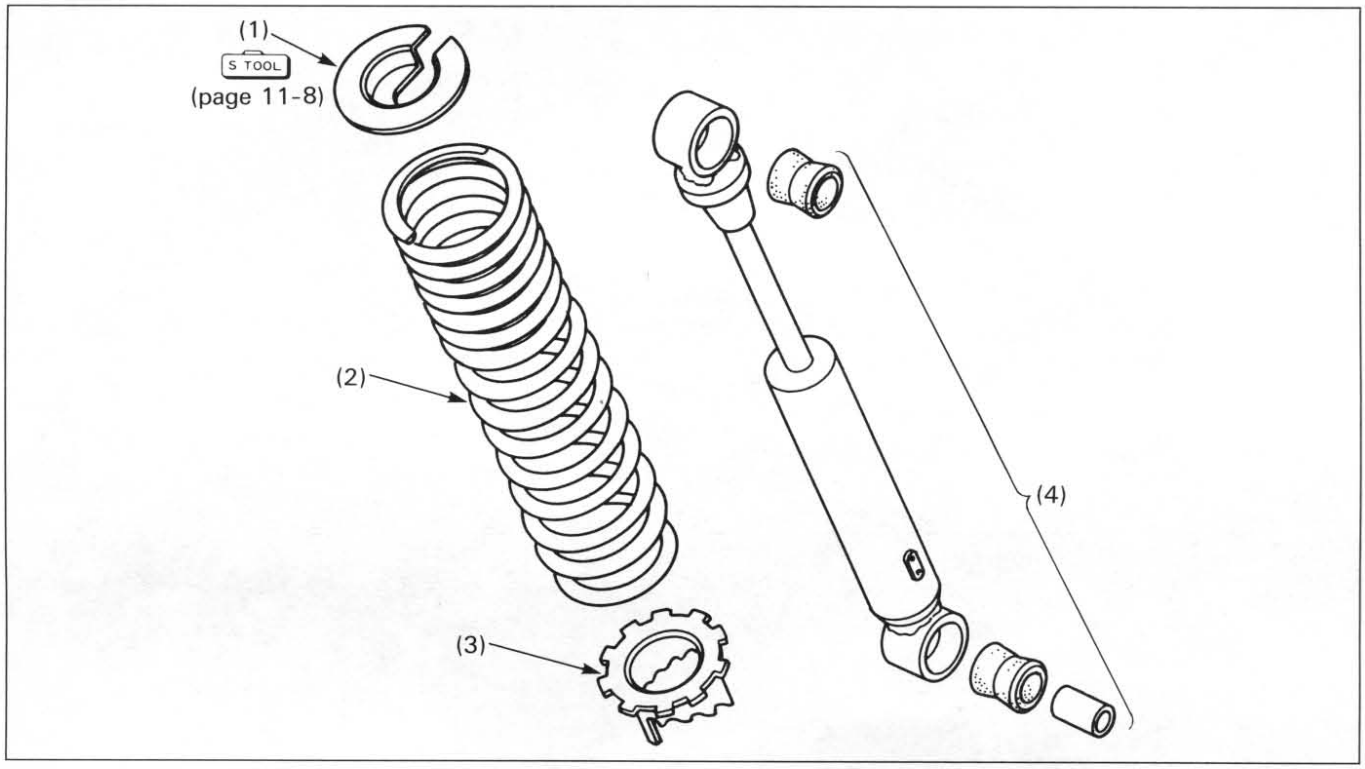
Shock Absorber Disassembly/Assembly



Requisite Service

- Rear shock absorber removal/installation (page 11-6)

	Procedure	Q'ty	Remarks
	Disassembly Order		Assembly is in the reverse order of disassembly.
(1)	Upper seat	1	See page 11-8.
(2)	Spring	1	Install with tightly wound coil end facing up.
(3)	Preload adjuster	1	
(4)	Damper unit assembly	1	

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Spring, Upper Seat Removal/Installation

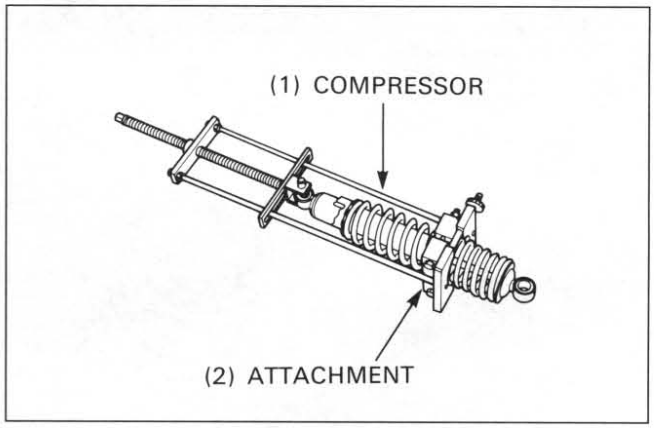
Install the shock absorber compressor and attachment on the shock absorber.

NOTE

- Install the compressor securely against the spring and tighten the nut securely.

S TOOL

Shock absorber compressor	**07GME-0010000**
Compressor attachment	**07959-MB10000**

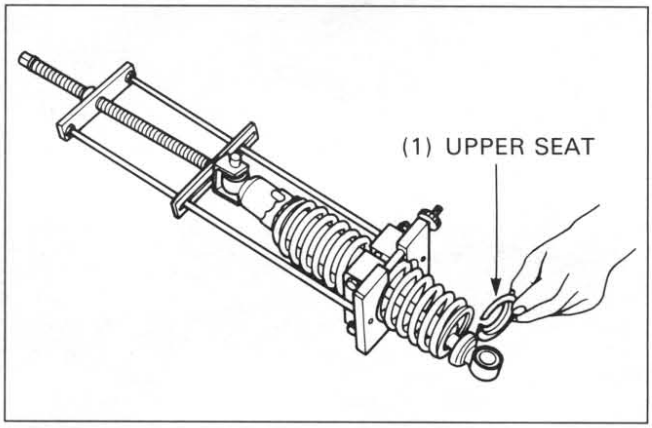


Compress the shock spring and remove the upper seat.

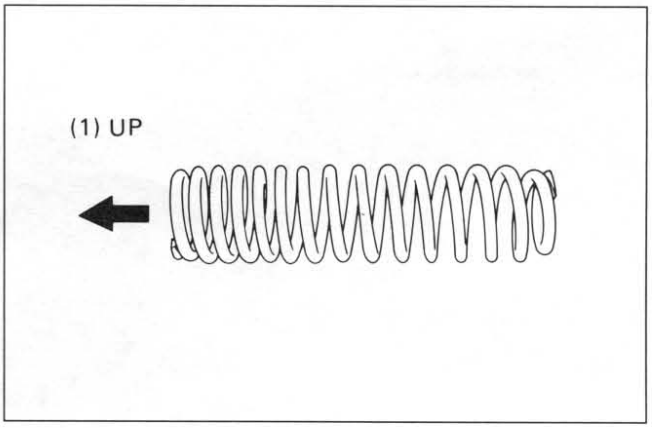
CAUTION

- **Do not compress the spring more than nesessary.**

Loosen the shock absorber compressor slowly and remove the shock absorber and attachment.
Remove the shock absorber spring.



Install the shock absorber spring with tightly wound coil end facing up.



Install the special tools and compress the shock spring.
Install the spring seat securely.

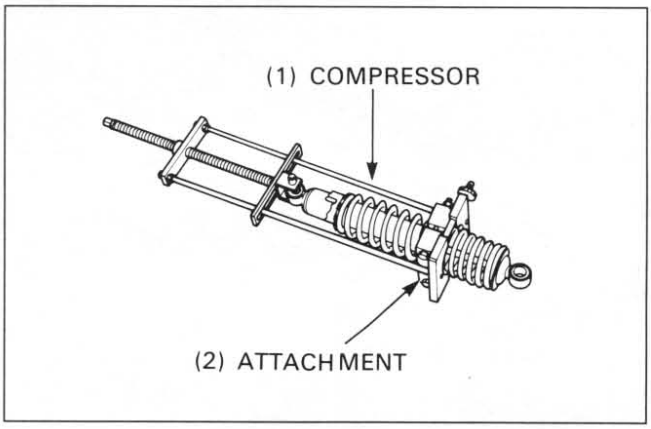
S TOOL

Shock absorber compressor	**07GME-0010000**
Compressor attachment	**07959-MB10000**

NOTE

- Install the compressor securely against the spring and tighten the nut securely.

Loosen the shock absorber compressor slowly and remove the shock absorber and attachment.



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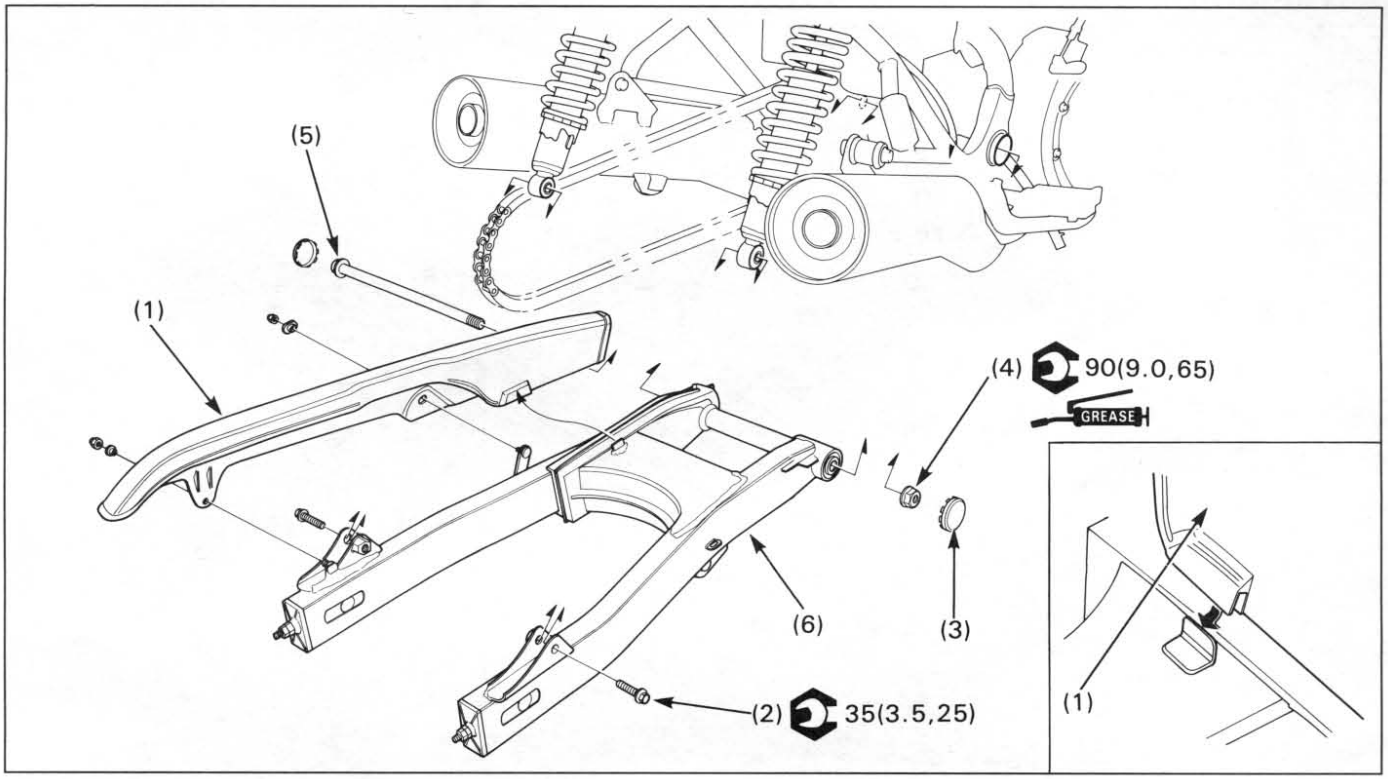
Swingarm Removal/Installation



NOTE

- For swingarm removal, a hoist or other support is required to support the motorcycle.

Requisite Service

- Rear wheel removal/installation (page11-2)
- Evaporative emission canister removal/installation (California model only)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Drive chain cover	1	
(2)	Shock absorber lower mounting bolt	2	
(3)	Cap	2	
(4)	Swingarm pivot nut	1	
(5)	Swingarm pivot bolt	1	
(6)	Swingarm assembly	1	

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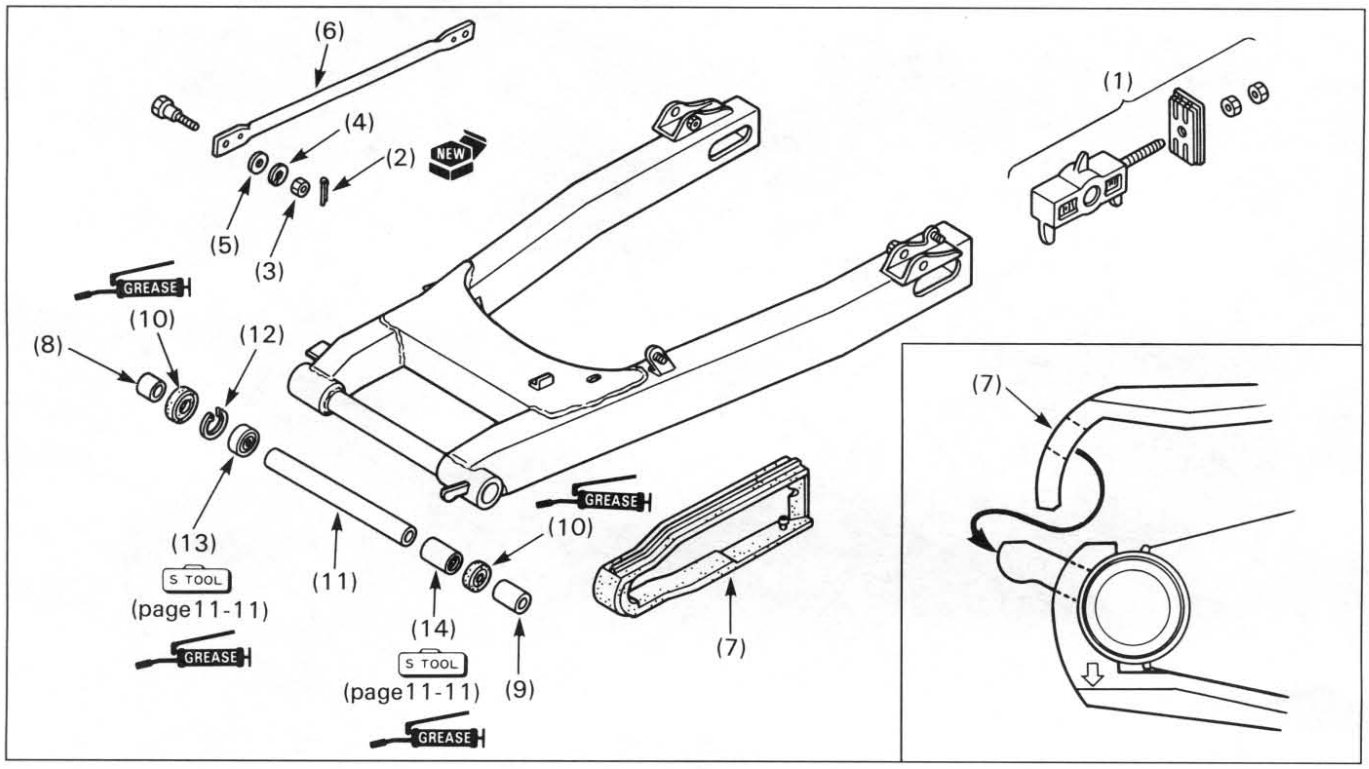
Swingarm Disassembly/Assembly



NOTE

- For pivot bearing replacement, see next page.

Requisite Service

- Swingarm removal/installation (page 11-9)

	Procedure	Q'ty	Remarks
	Disassembly Order		Assembly is in the reverse order of disassembly.
(1)	Drive chain adjuster	2	
(2)	Cotter pin	1	
(3)	Nut	1	
(4)	Plain washer	1	
(5)	Rubber cushion	1	
(6)	Brake stopper arm	1	
(7)	Drive chain slider	1	Install the drive chain slider as shown.
(8)	Right pivot collar	1	
(9)	Left pivot collar	1	
(10)	Dust seal	2	Apply grease to the lip.
(11)	Distance collar	1	
(12)	Snap ring	1	Install into the groove securely.
(13)	Ball bearing	1	
(14)	Needle bearing	1	

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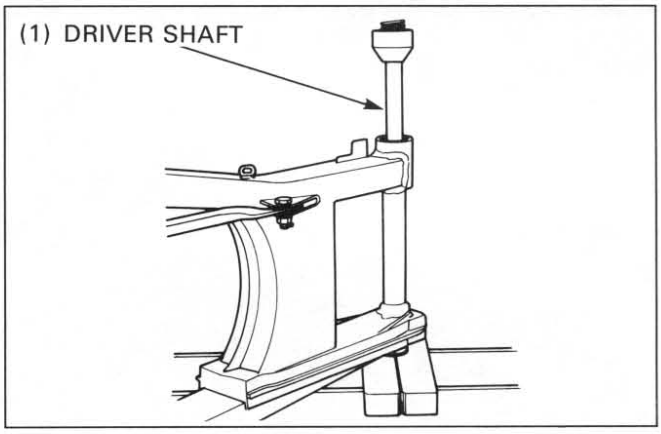
Swingarm Pivot Bearing Replacement

Press the right pivot bearing (ball bearing) out of swingarm.

S TOOL

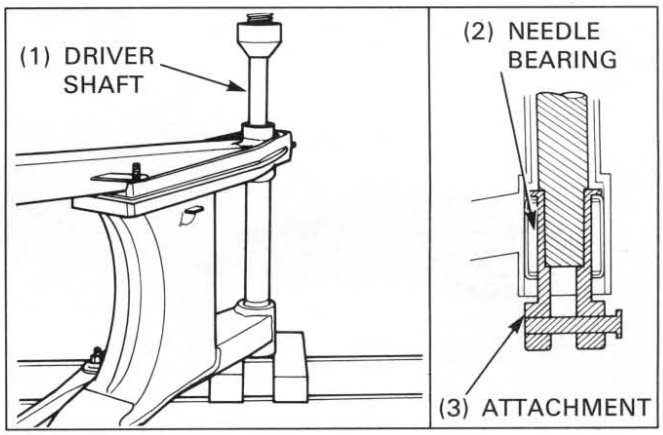
Driver shaft	**07946-MJ00100 (Not available in U.S.A.)**
or	
Driver	**07949-3710001**



Set the needle bearing remover onto the left pivot bearing (needle bearing) as shown.

S TOOL

Needle bearing remover attachment	**07GMD-KT70200 (Not available in U.S.A.)**
Driver shaft	**07946-MJ00100 (Not available in U.S.A.)**
or	
Bushing remover	**M967X-038-XXXXX**
Driver	**07949-3710001**
Pilot, 17 mm	**07746-0040400**



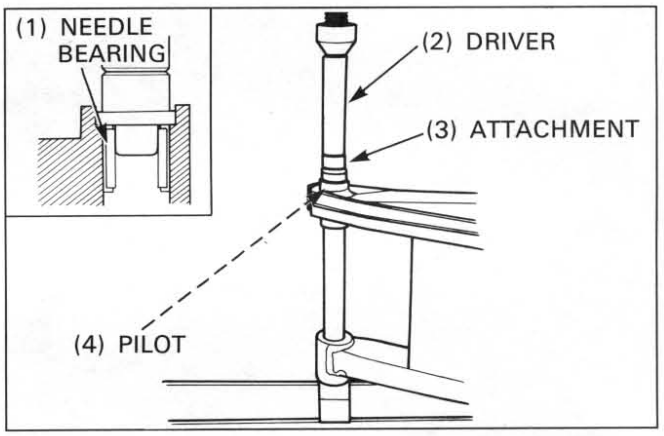
Press the needle bearing into the swingarm with the marked side facing out.

NOTE

- The bearing surface should be flush with the pivot inside surface as shown.

S TOOL

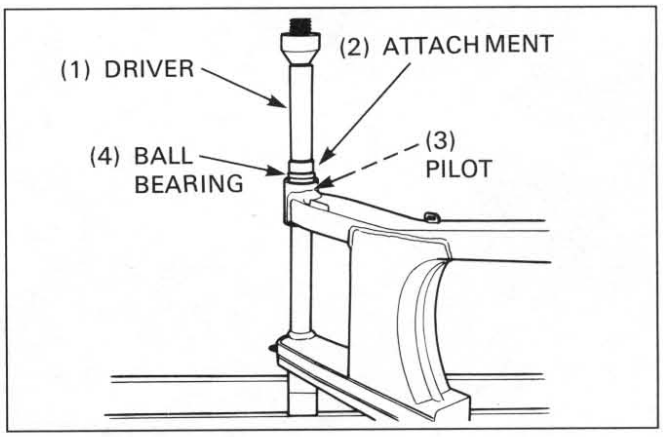
Driver	**07749-0010000**
Attachment, 28×30mm	**07946-1870100**
Pilot, 22mm	**07746-0041000**



Press the ball bearing in until it bottoms in the swingarm.

S TOOL

Driver	**07749-0010000**
Attachment, 32×35mm	**07746-0010100**
Pilot, 15mm	**07746-0040300**



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12. Brake System

Service Information

Brake dust may contain asbestos fibers.
Never use an air hose or dry brush to clean brake assemblies. Use an OSHA-approved vacuum cleaner or alternate method approved by OSHA, designed to minimize the hazard caused by airborne asbestos fibers.

⚠ WARNING

- **Inhaled asbestos fiber have been found to cause respiratory disease and cancer.**

Keep grease off of brake disc, drum, pads and shoes.

CAUTION

- **A contaminated brake disc, durm, pad or shoe reduces stopping power. Discard contaminated pads/shoes and clean a contaminated disc with a high quality brake degreasing agent.**

- Once the hydraulic system has been opened, or if the brakes feel spongy, the system must be bled.
- Never allow contaminants (dirt, water, etc) to get into an open reservoir.
- Avoid spilling brake fluid on painted, plastic or rubber parts. Place a rag or shop towel over these parts whenever the system is serviced.
- Always use fresh DOT 4 brake fluid from a sealed container when servicing the system. Do not mix different types of fluid as they may not be compatible.
- Always check the brake operation before riding the motorcycle.

12

Troubleshooting

Front Brake :

Brake Lever Soft Or Spongy
- Air bubbles in the hydraulic system
- Leaking hydralic system
- Contaminated brake pad/disc
- Worn caliper piston seal
- Worn master cylinder piston seal
- Worn brake pad/disc
- Contaminated caliper
- Caliper not sliding properly
- Low fluid level
- Clogged fluid passage
- Warped/deformed brake disc
- Sticking/worm caliper piston
- Sticking/worn master cylinder piston
- Contaminated master cylinder

Rear brake :

Poor Brake Performance
- Improperly adjusted brake
- Worn brake linings
- Worn brake drum
- Worn brake cam
- Improperly installed brake linings
- Brake linkage needs lubrication
- Contaminated brake linings
- Comtaminated brake drum
- Worn brake shoes at cam contact area
- Improper engagement between brake arm and cam serrations.

Brake Lever Hard
- Clogged/restricted brake system
- Sticking/worn caliper piston
- Caliper not sliding properly
- Clogged/restricted fluid passage
- Worn caliper piston seal
- Sticking/worn master cylinder piston
- Bent brake lever

Brakes Drag
- Contaminated brake pad/disc
- Misaligned wheel
- Worn brake pad/disc
- Warped/deformed brake disc
- Caliper not sliding properly

Brake Pedal Hard Or Slow Return
- Worn/broken return spring
- Improperly adjusted brake
- Sticking brake drum due to contamination
- Worn brake shoes at cam contact area
- Brake linkage needs lubrication
- Improperly installed brake linings

Brake Squeaks
- Worn brake linings
- Worn brake drum
- Contaminated brake linings
- Contaminated brake drum

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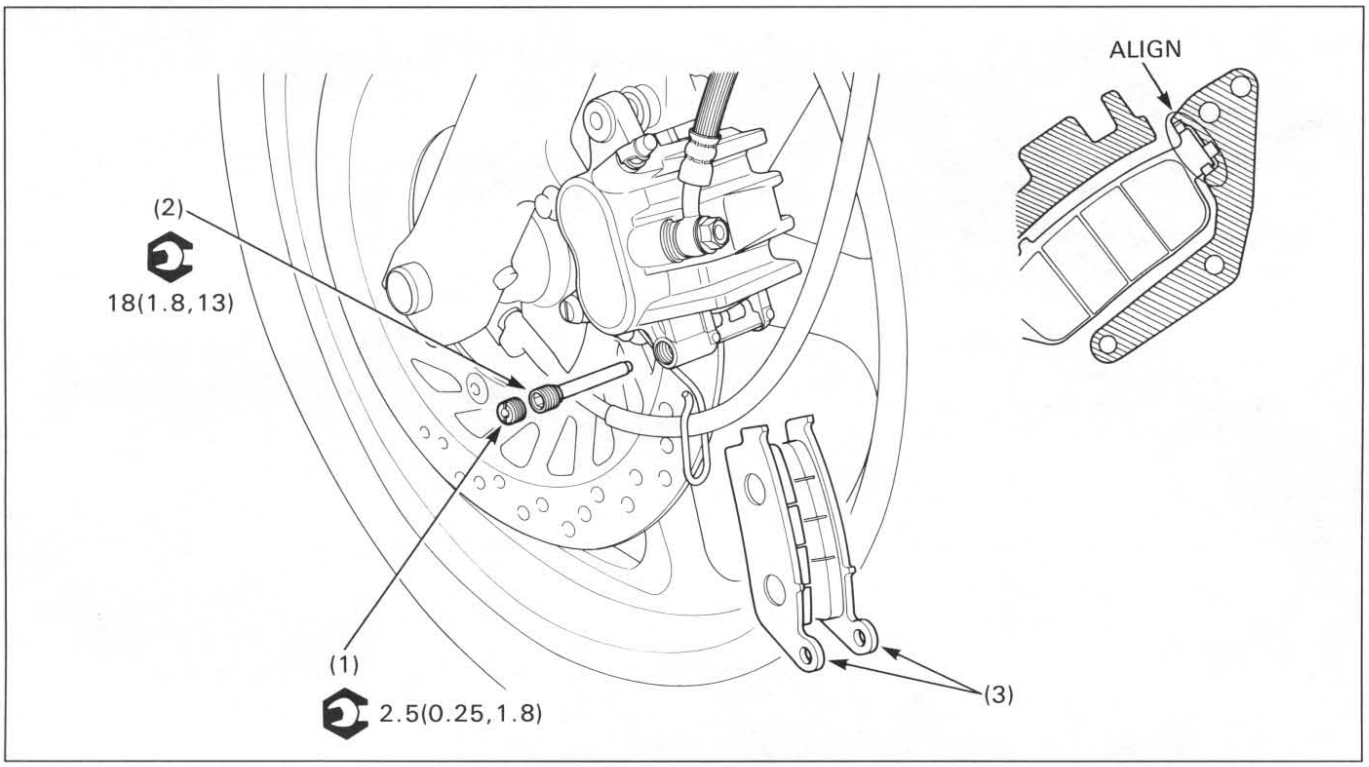
Front Brake Pad Replacement



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Never use an air hose or dry brush to clean brake assemblies. Use an OSHA-approved vacuum cleaner or alternate method approved by OSHA, designed to minimize the hazard caused by airborne asbestos fibers.

⚠WARNING

- **Inhaled asbestos fiber have been found to cause respiratory disease and cancer.**

Keep grease off of brake disc and pads.

CAUTION

- **A contaminated brake disc or pad reduces stopping power. Discard contaminated pads and clean a contaminated disc with a high quality brake degreasing agent.**

NOTE

- Pushing the caliper against the disc, push the caliper pistons all the way in to allow the installation of new pads.
- Do not squeeze the brake lever when the caliper is removed, or it will be difficult to refit the disc between the brake pads.
- Replace brake pads as a set.
- Apply a thin of silicone grease onto the pad pin as a rust preventative.
- After replacement, operate the brake lever to seat the caliper pistons against the pads.

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Pad pin plug	1	
(2)	Pad pin	1	Insert the pin, pushing the pads against the pad spring.
(3)	Brake pad	2	Align the pad lug with the pad retainer as shown.

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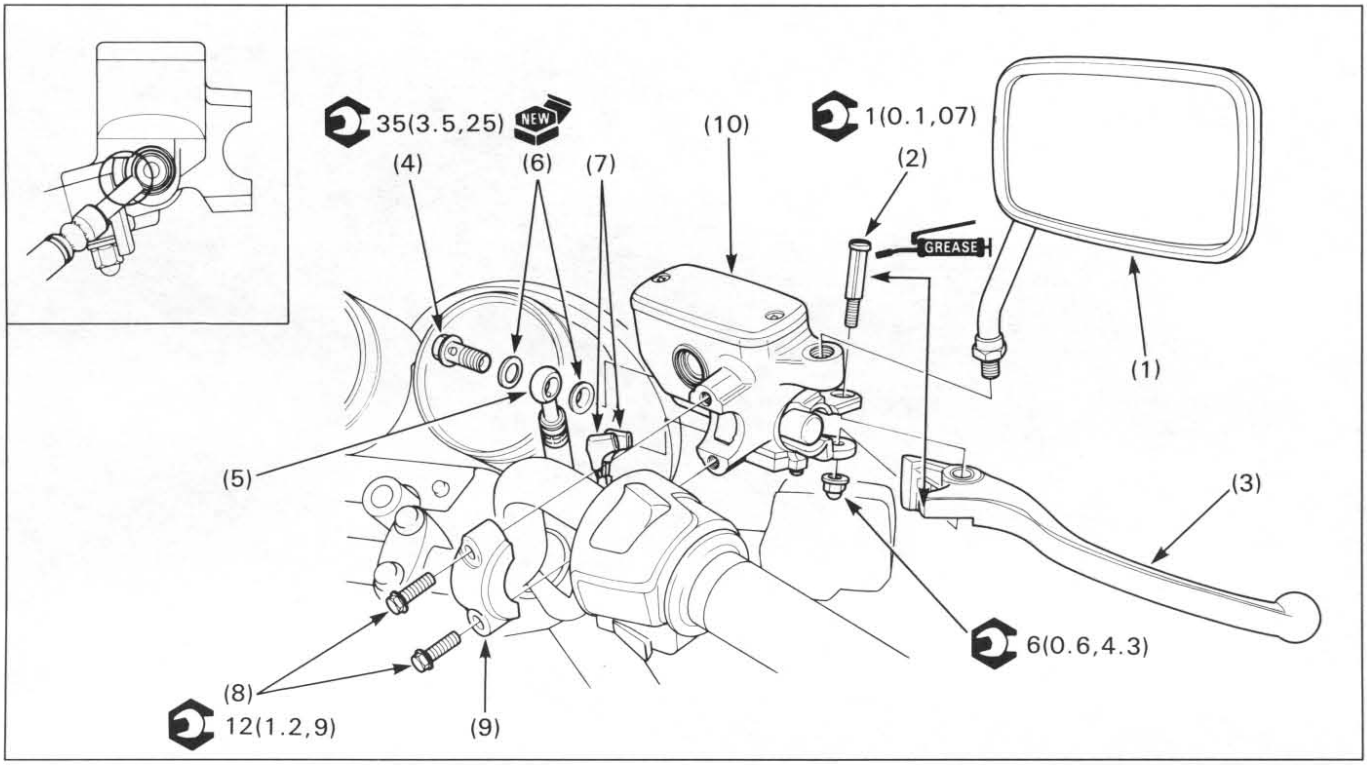
Front Master Cylinder Removal/Installation



CAUTION

- **Spilled brake fluid will damage painted, plastic, or rubber parts. Cover these parts when servicing the brake system.**

Requisite Service

- Brake fluid replacement/air bleeding (section 17 of the Common Service Manual)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Right rearview mirror	1	
(2)	Brake lever pivot bolt	1	
(3)	Brake lever	1	
(4)	Brake hose bolt	1	
(5)	Brake hose	1	At installation, press the hose end against the stopper while tightening the hose bolt.
(6)	Sealing washer	2	
(7)	Front brake light switch connector	2	
(8)	Master cylinder holder bolt	2	Tighten the upper bolt first, then the lower bolt.
(9)	Master cylinder holder	1	Face the "UP" mark upward.
(10)	Master cylinder assembly	1	Align the holder end with the punch mark on the handlebar.

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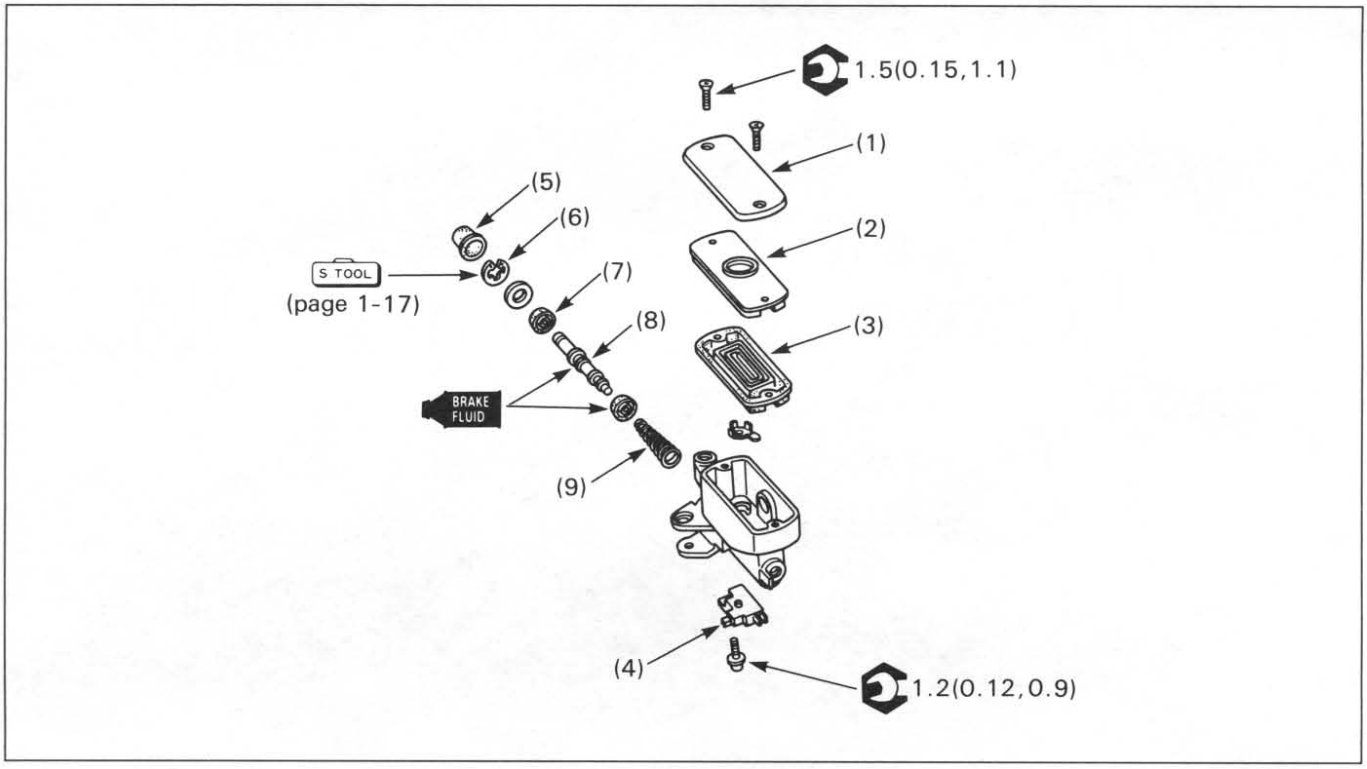
Front Master Cylinder Disassembly/Assembly



CAUTION

- **Spilled brake fluid will damage painted, plastic, or rubber parts. Cover these parts when servicing the brake system.**

NOTE

- Replace the master piston, spring, cups, stopper plate, snap ring and boot as a set.
- The master piston, cups and spring must be installde as a set.

Requisite Service

- Brake fluid replacement/air bleeding (section 17 of the Common Service Manual)
- Front master cylinder removal/installation (page 12-3)

	Procedure	Q'ty	Remarks
	Disassembly Order		Assembly is in the reverse order of disassembly.
(1)	Reservoir cover	1	
(2)	Diaphragm plate	1	
(3)	Diaphragm	1	
(4)	Front brake light switch	1	
(5)	Boot	1	
(6)	Snap ring	1	COUTION • Be certain the snap ring is fully seated in the groove.
(7)	Stopper plate	1	
(8)	Master piston assembly	1	
(9)	Spring	1	Install it with its small coil end toward the piston.

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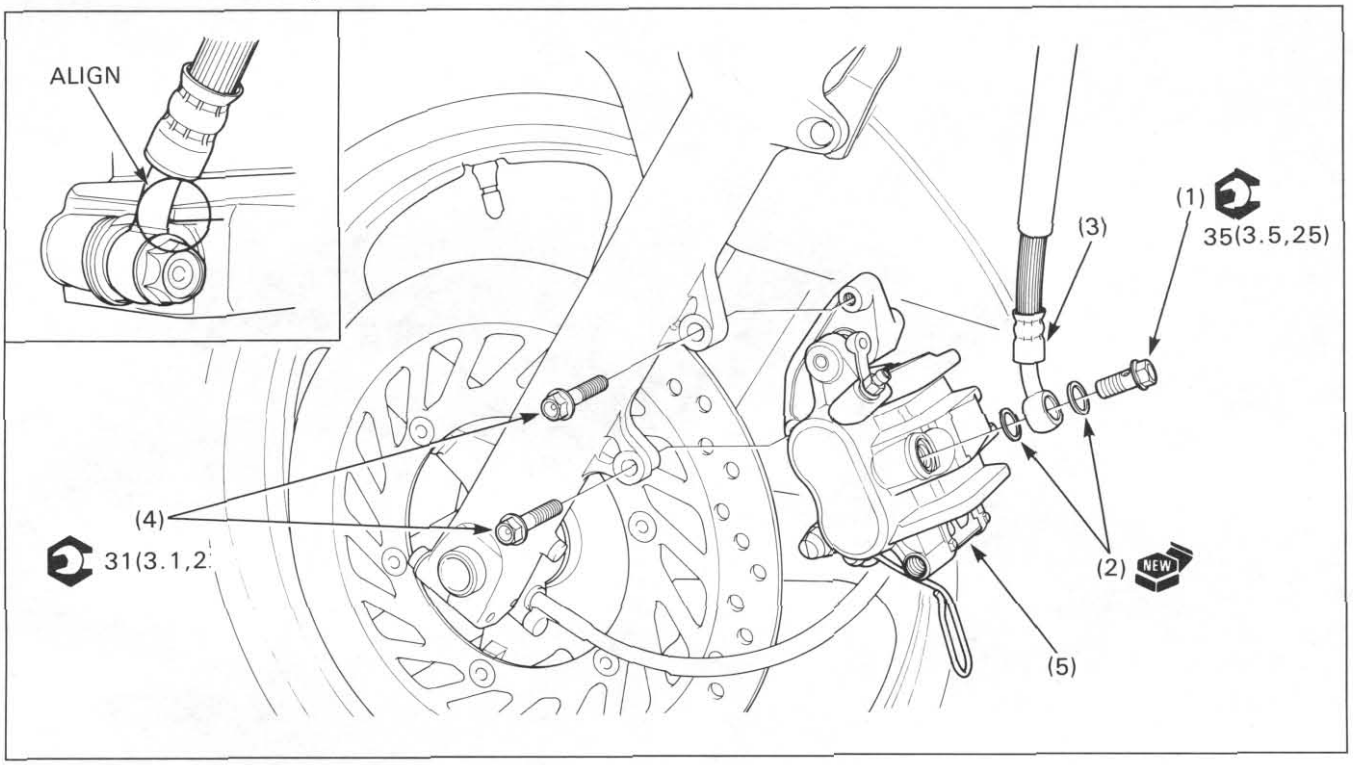
Front Brake Caliper Removal/Installation



Brake dust may contain asbestos fibers.
Never use an air hose or dry brush to clean brake assemblies. Use an OSHA-approved vacuum cleaner or alternate method approved by OSHA, designed to minimize the hazard caused by airborne asbestos fibers.

⚠WARNING

- **Inhaled asbestos fiber have been found to cause respiratory disease and cancer.**

Keep grease off of brake disc and pads.

CAUTION

- **A contaminated brake disc or pad reduces stopping power. Discard contaminated pads and clean a contaminated disc with a high quality brake degreasing agent.**
- **Spilled brake fluid will damage painted, plastic, or rubber parts. Cover these parts when servicing the brake system.**

Requisite Service

- Brake pad removal/installation (page 12-2).
- Brake fluid replacement/air bleeding (section 17 of the Common Service Manual)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Brake hose bolt	1	
(2)	Sealing washer	2	
(3)	Brake hose	1	At installation, press the hose end against the stopper while tightening the hose bolt.
(4)	Caliper bracket bolt	2	
(5)	Front brake caliper assembly	1	

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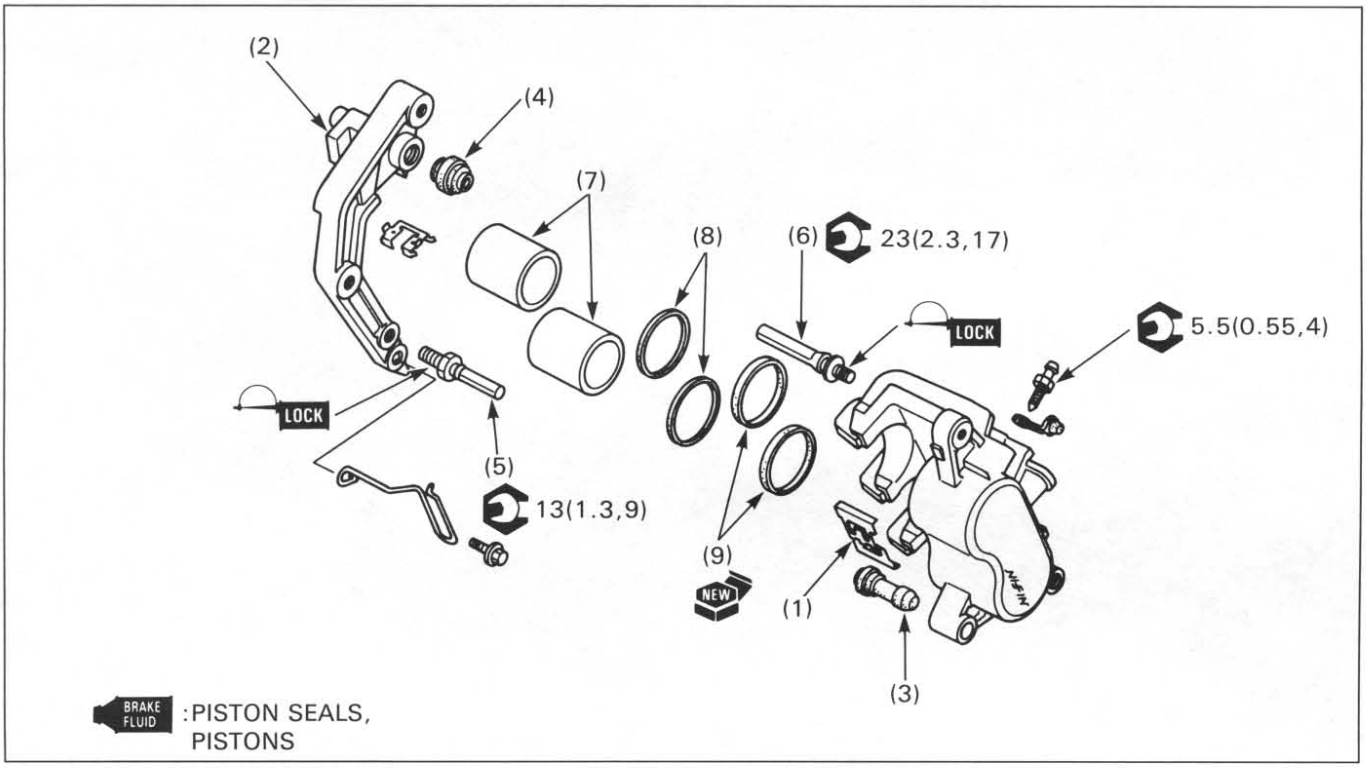
Front Brake Caliper Disassembly/Assembly



Brake dust may contain asbestos fibers.
Never use an air hose or dry brush to clean brake assemblies. Use an OSHA-approved vacuum cleaner or alternate method approved by OSHA, designed to minimize the hazard caused by airborne asbestos fibers.

⚠WARNING

- **Inhaled asbestos fiber have been found to cause respiratory disease and cancer.**

Keep grease off of brake disc and pads.

CAUTION

- **A contaminated brake disc or pad reduces stopping power. Discard contaminated pads and clean a contaminated disc with a high quality brake degreasing agent.**
- **Spilled brake fluid will damage painted, plastic, or rubber parts. Cover these parts when servicing the brake system.**

Requisite Service

- Brake pad removal/installation (page 12-2)
- Front brake caliper removal/installation (page 12-5)
- Brake fluid replacement/air bleeding (section 17 of the Common Service Manual)

	Procedure	Q'ty	Remarks
	Disassembly Order		Assembly is in the reverse order of disassembly.
(1)	Pad spring	1	Note the spring direction as shown.
(2)	Caliper bracket	1	
(3)	Bracket pin bolt boot	1	
(4)	Caliper pin bolt boot	1	Install into the bracket groove securely.
(5)	Bracket pin bolt	1	Apply a locking agent to the threads before torquing. Apply
(6)	Caliper pin bolt	1	silicone grease to the pin.
(7)	Caliper piston	2	Install them with the concaved side away from the pads.
(8)	Dust seal	2	**CAUTION**
(9)	Piston seal	2	• **Be careful not to damage the piston sliding surface when removing seals.**

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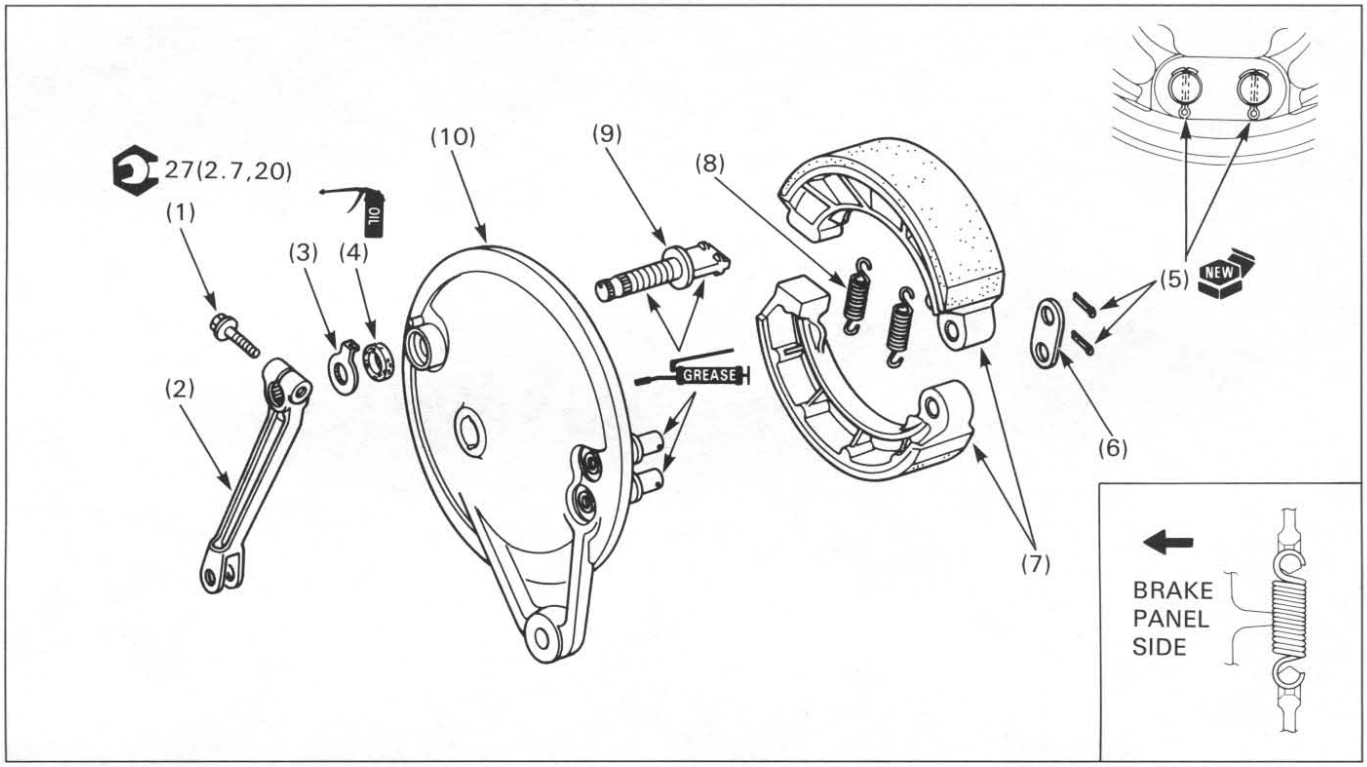
Rear Brake Panel Disassembly/Assembly



Brake dust may contain asbestos fibers.
Never use an air hose or dry brush to clean brake assemblies. Use an OSHA-approved vacuum cleaner or alternate method approved by OSHA, designed to minimize the hazard caused by airborne asbestos fibers.

⚠WARNING

- **Inhaled asbestos fiber have been found to cause respiratory disease and cancer.**

Keep grease off of brake drum and shoes.

CAUTION

- **A contaminated brake drum or shoe reduces stopping power. Discard contaminated shoes and clean a contaminated disc with a high quality brake degreasing agent.**

Requisite Service

- Rear wheel removal/installation (page 11-2)

	Procedure	Q'ty	Remarks
	Disassembly Order		Assembly is in the reverse order of disassembly.
(1)	Brake arm pinch bolt	1	
(2)	Brake arm	1	At installation, align the punch marks on the brake cam and pin.
(3)	Brake indicator	1	At installation, align the wide tooth with the wide slot in the brake cam.
(4)	Felt seat	1	
(5)	Cotter pin	2	Install with endless side facing out.
(6)	Cotter pin plate	1	
(7)	Brake shoe	2	
(8)	Shoe spring	2	
(9)	Brake cam	1	At installation, apply grease to the sliding surface and cam portion.
(10)	Brake panel	1	

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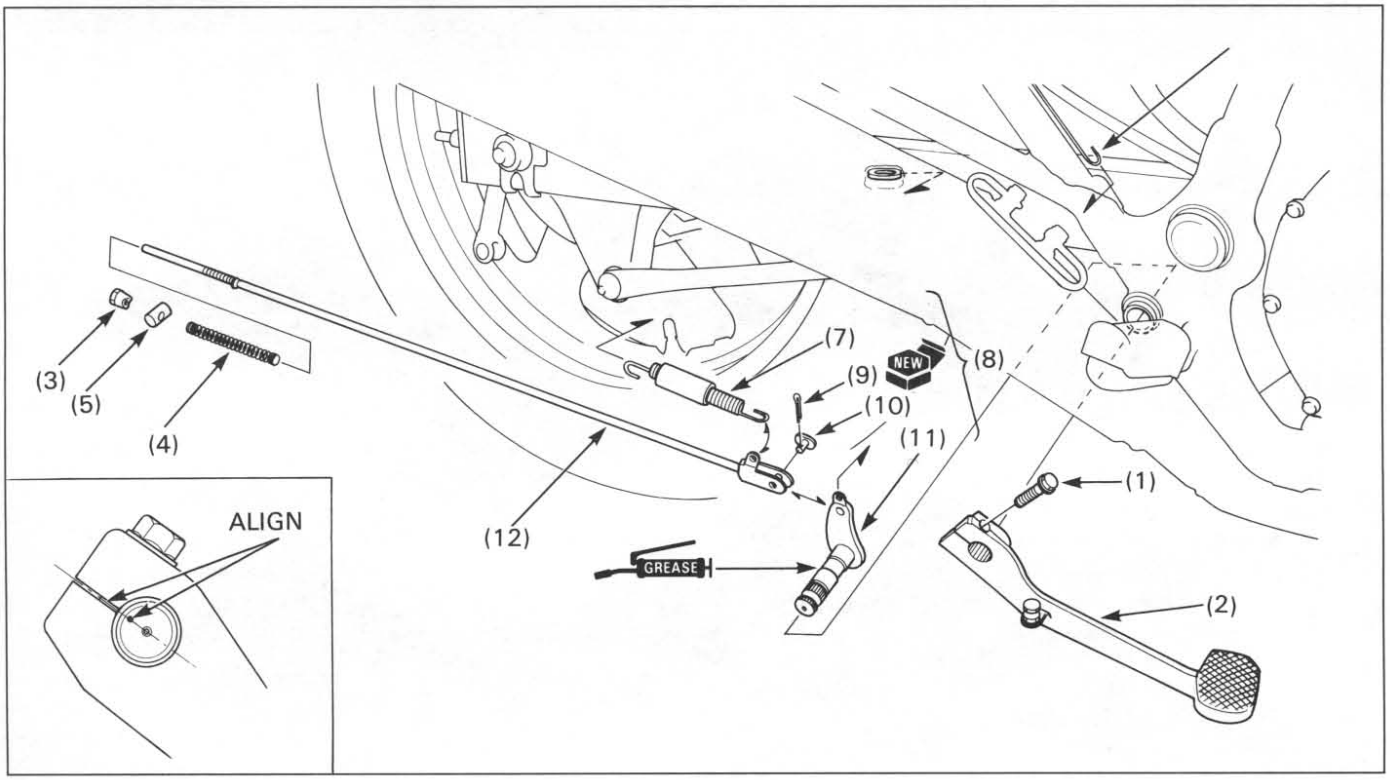
Brake Pedal Removal/Installation



Requisite Service

- Evaporative emission canister removal/installation (California model only.)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Brake pedal pinch bolt	1	
(2)	Brake pedal	1	Align the punch mark on the shaft with the brake pedal slot.
(3)	Brake rod adjusting nut	1	
(4)	Brake rod spring	1	
(5)	Brake rod joint piece	1	
(6)	Brake switch spring	1	
(7)	Brake pedal return spring	1	
(8)	Brake linkage assembly	—	
(9)	-cotter pin	1	
(10)	-joint pin	1	At assemble, align the cutout of the joint pin with the boss in the brake rod.
(11)	-brake linkage	1	Apply clean grease to the sliding surface of the shaft.
(12)	-brake rod	1	

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13. Charging System/Alternator

Service Information

⚠ WARNING

- **The battery gives off explosive gases ; keep sparks, frames, and cigarettes away. Provide adequate ventilation when chariging or using the battery in an enclosed space.**
- **The battery contains sulfuric acid (electrolyte). Contact with skin or eyes may cause severe burns. Wear protective clothing and a face shield.**
  —If electrolyte gets on your skin, flush with water.
  —If electrolyte gets in your eyes, flush with water for at least 15 minutes and call a physician immediately.
- **Electrolyte is poisonous. If swallowed, drink large quantities of water or milk and follow with milk of magnesia or vegetable oil and call a physician.**
- **KEEP OUT OF REACH OF CHILDREN.**

- For alternator shaft assembly removal/installation, refer to section 9.
- Always turn off the ignition switch before disconnecting any electrical component.

CAUTION

- **Some electrical components may be damaged if terminals or connectors are connected or disconnected while the ignition switch is ON and current is present.**

13

- For extended storage, remove the battery, give it a full charge, and store it in a cool, dry space. For maximum service life, charge the stored battery every two weeks.
- For a battery remaining in a stored motorcycle, disconnect the negative battery cable from the battery terminal.

NOTE

- Refer to Section 22 of the Common Service Manual and the instructions in the Operation Manual for the HONDA Battery Tester and Christie Battery Charger for detailed battery charging steps.

- The battery can be damaged if over charged or undercharged, or of left to discharge for long periods. These same conditions contribute to shortening the "life span" of the battery. Even under normal use, the performance of the battery deteriorates after 2-3 years.
- Battery voltage may recover after battery charging, but under heavy load, battery voltage will drop quickly and eventually die out. For this reason, the charging system is often suspected to be the problem. Battery overcharge often results from problems in the battery itself, which may appear to be an overcharge symptom. If one of the battery cells is shorted and battery voltage does not increase, the regulator/rectifier supplines excess voltage to the battery. Under these conditions, the electrolyte level goes down quickly.
- Before troubleshooting the charging system, check for proper use and maintenance of the battery. Check if the battery is frequently under heavy load, such as having the headlight and taillight ON for long periods of time without riding the motorcycle.
- The battery will self-discharge when the motorcycle is not is use. For this reason, charge the battery every two weeks to prevent sulfation from forming.
- Filling a new battery with electrolyte will produce some voltage, but in order to achieve its maximum performance, always charge the battery. Also, the battery life is lengthened when it is initial-charged.
- When checking the charging system, always follow the steps in the troubleshooting flow chart (page 13-3).
- For battery testing/charging, refer to section 22 of the Common Service Manual.
- For charging system component locations, see page 13-2.

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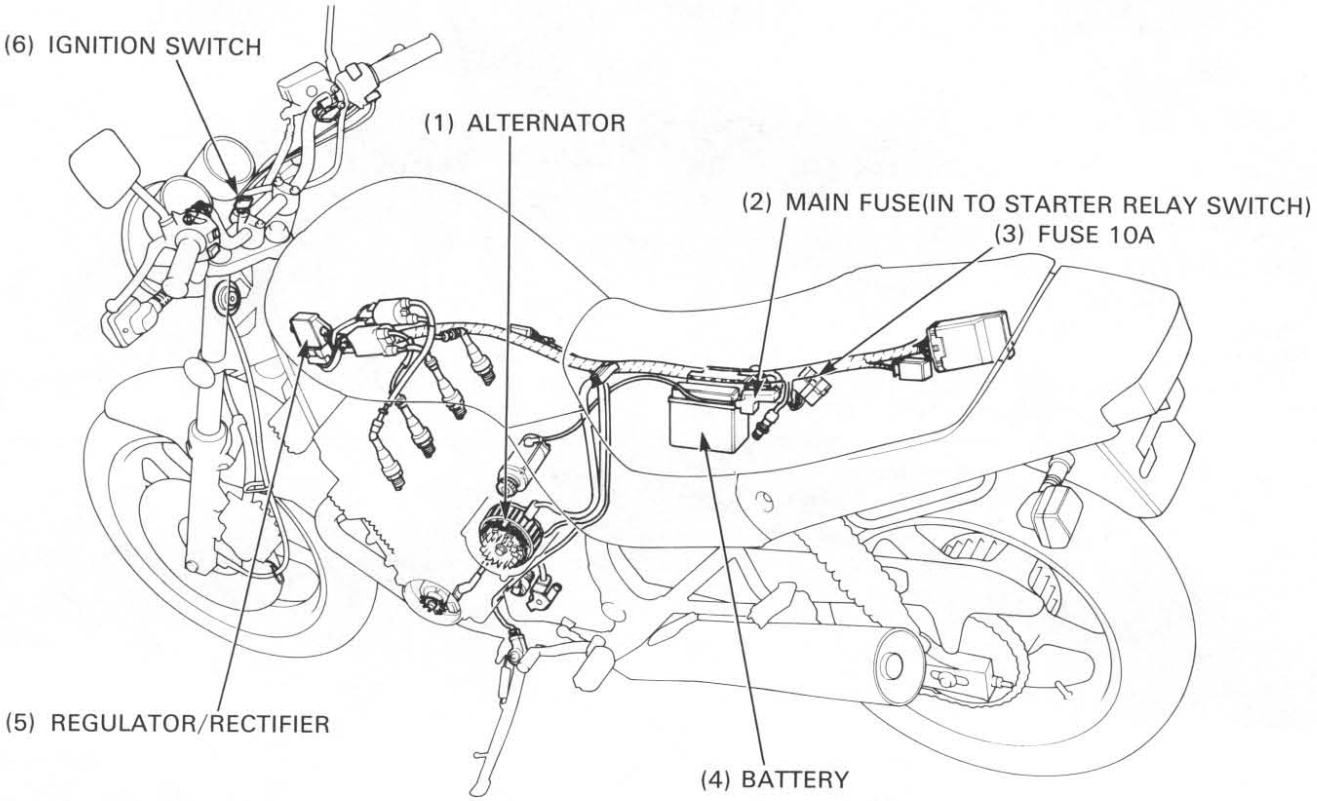
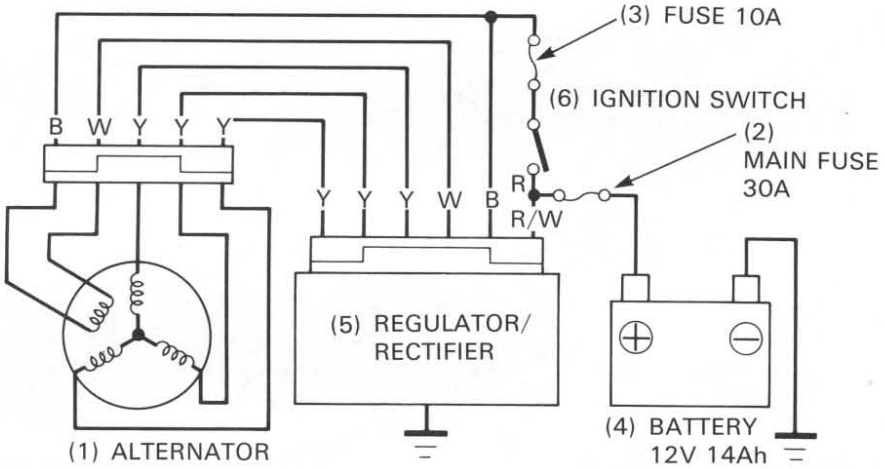
System Location





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Troubleshooting

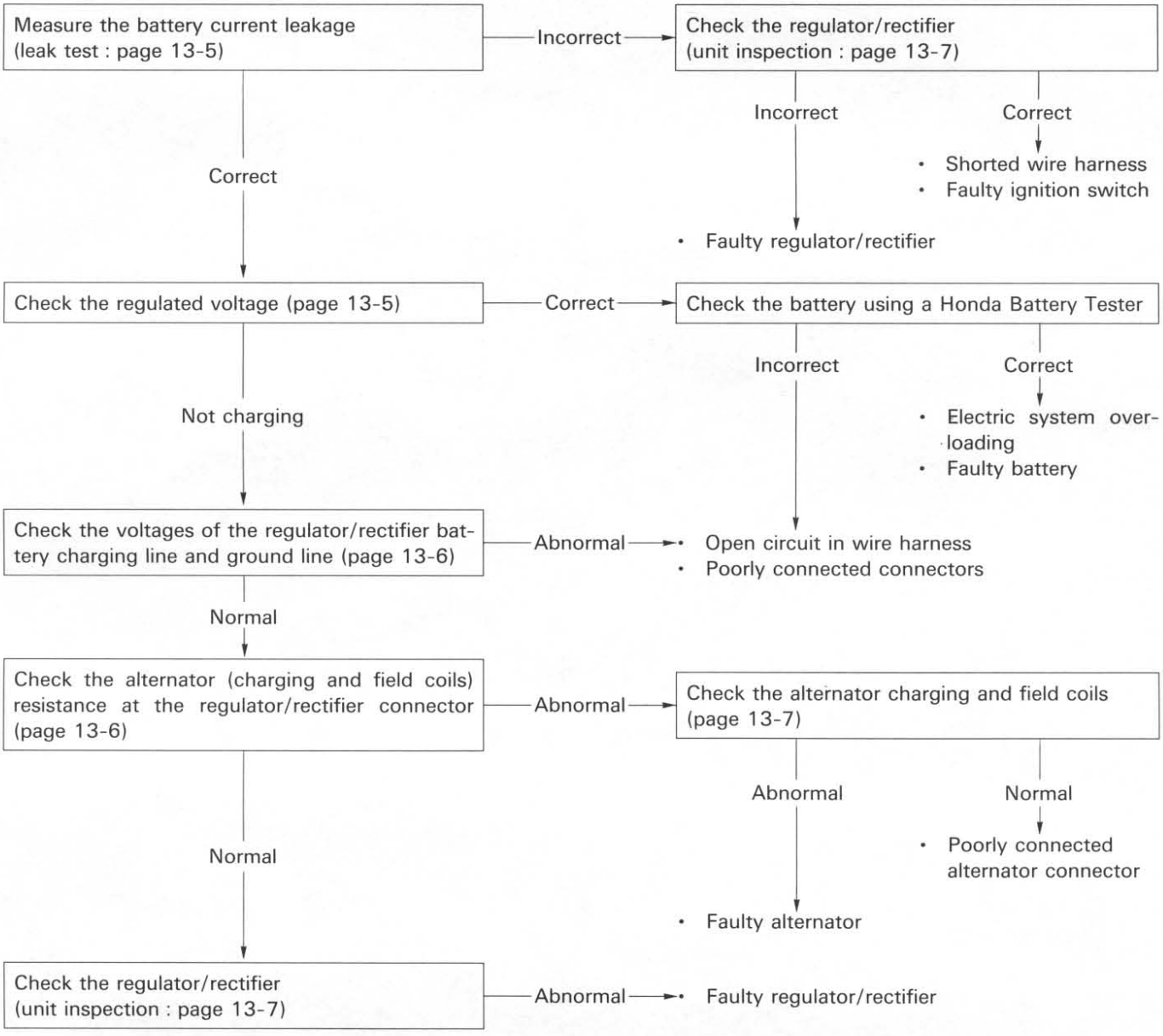
Battery Overcharging

- faulty regulator/rectifier

Battery Undercharging

NOTE

- In order to obtain accurate test readings, the battery must be fully charged and in good condition. Refer to the Common Service Manual, section 22, for instructions on checking the battery condition.



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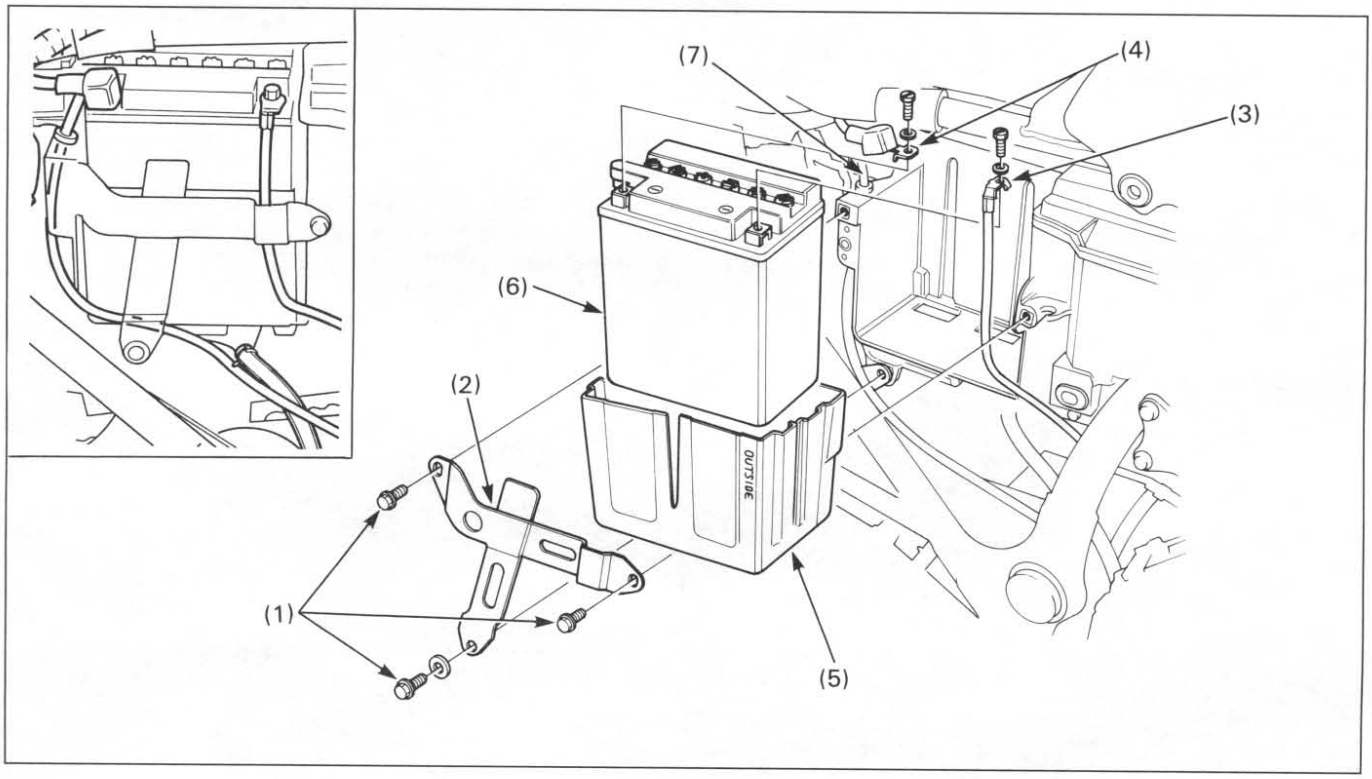
Battery Removal/Installation



NOTE

- With the ignition switch OFF, remove the negative terminal at the battery first, then remove the positive terminal.

Requisite Service

- Right side cover removal/installation (page 2-3)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Battery holder bolt	3	
(2)	Battery holder	1	
(3)	Negative terminal	1	
(4)	Positive terminal	1	
(5)	Battery case	1	With the "OUTSIDE" mark facihg up.
(6)	Battery	1	
(7)	Breather tube	1	

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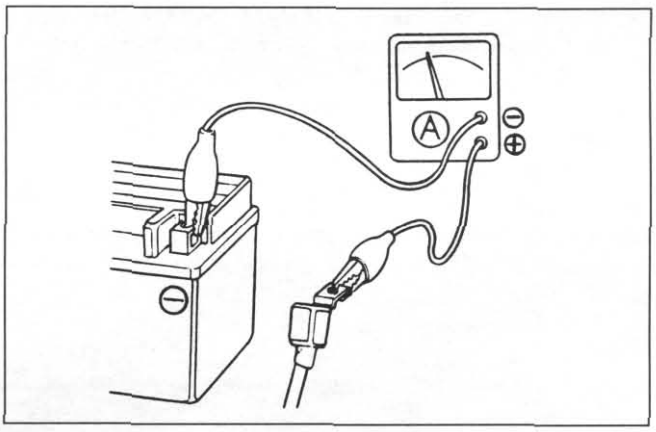
Charging System Inspection

Leakage Test

Turn the ignition switch off, and disconnect the ground (−) cable from the battery.



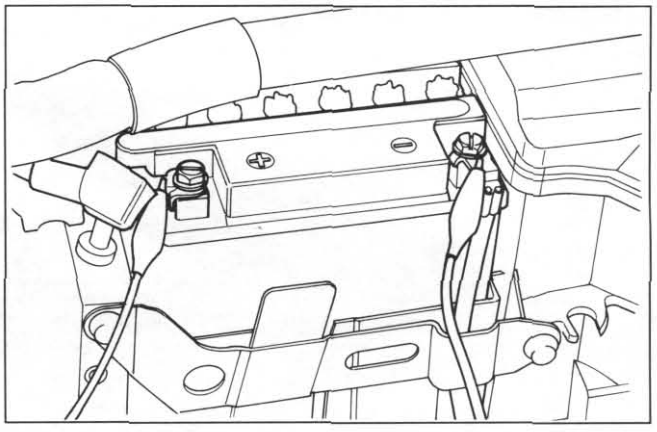
Connect the ammeter (+) probe to the ground cable and the ammeter (−) probe to the battery (−) terminal.
With the ignition switch off, check for current leakage.

NOTE

- When measuring the current using a tester, set it to a high range, and then bring the range down to an appropriate level. Current flow larger than the range selected may blow out the fuse in the tester.
- While measuring current, do not turn the ignition switch ON. A sudden surge of current may blow out the fuse in the tester.

Specified Current Leakage : 0.01mA max.
If current leakage exceeds the specified value, a shorted circuit is likely.
Locate the short by disconnecting connectors one by one and measuring the current.

Regulated Voltage/Amperage Inspection



NOTE

- Before performing this test, be sure the battery is fully charged and that the specific gravity is greater than 1.27 (20°C/68F)

Start the engine and warm it up to operating temperature, then turn the ignition switch OFF.

[Battery Regulated Voltage]
Connect the multimeter between the battery terminals.

S TOOL

Digital multimeter	***07411–0020000 or*** **KS-AHM-32-003 (U.S.A. only) or equivalent commercially available in U.S.A.**
Analogue tester	**07308–0020001 or TH-5H-1 (U.S.A. only) or equivalent commercially available in U.S.A.**

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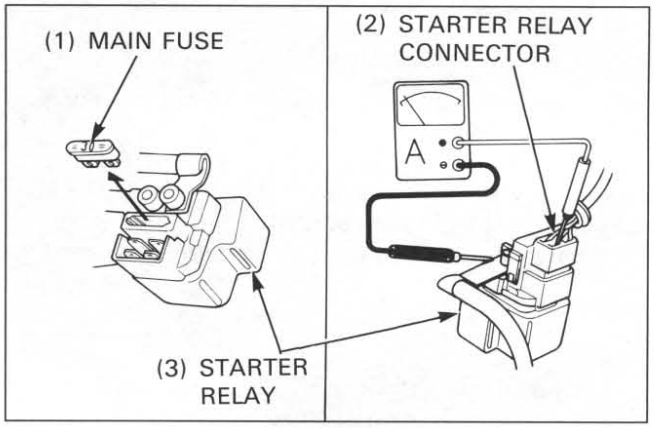
⚠WARNING

- **If the engine must be running to do some work, make sure the area is well-ventilated. Never run the engine in an enclosed area.**
- **The exhaust contains poisonous carbon monoxide gas that may cause loss of consciousness and lead to death.**

Disconnect the starter relay switch connector remove the main fuse (30A). Reconnect the connector onto the relay switch.
Connect the ammeter as shown.



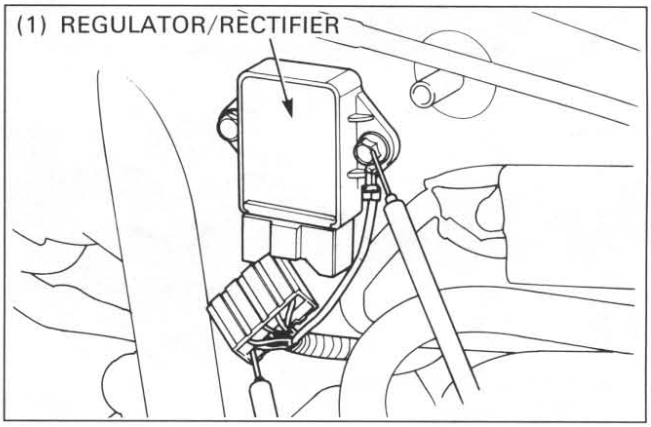
Start the engine and increase the engine speed gradually.

CAUTION

- **Be careful not to short the tester probes.**
- **Although the current could be measured when the ammeter is connected between the battery positive terminal and the positive cable, a sudden surge of current to the starter motor could damage the ammeter.**
- **Always turn the ignition OFF when conducting the test. Disconnecting the ammeter or wires when current is flowing may damage the ammeter.**

Regulated Voltage : : 13.0–15.0V/2,000 rpm
Charging current : Below 0.5 A

Regulator/Rectifier



System Inspection
Disconnect the regulator/rectifier 6P connector.

Check the connectors for loose or corroded terminals.

Measure the following between the connector terminals of the wire harness side.

Item	Terminals	Specification
Battery charging line	Red/white (+) and ground (−)	Battery voltage should register.
Voltage detection line	Black (+) and ground (−)	When the ignition switch is ON, battery voltage should register.
Charging coil line	Yellow and Yellow	0.4–0.6 Ω (20°C/68°F)
Field coil line	White and Black	2.1–2.6 Ω (20°C/68°F)

If the charging coil line reading is out of specification, check the alternator (page 13-7).

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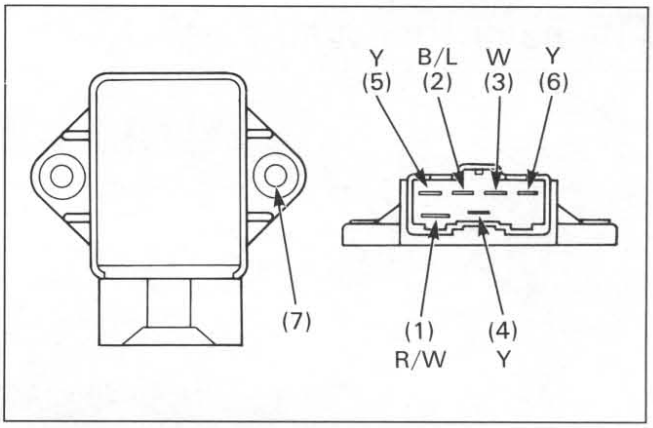
Unit Inspection

Provided the circuit on the wire harness side is normal and there are no loose connections at the connector, inspect the regulator/rectifier unit by measuring the resistance between the terminals.

NOTE

- You'll get false readings if the probes touch your fingers.
- Use the specified multimeters. Using other equipment may not allow you to obtain the correct results. This is due to the characteristic of semiconductors, which have different values depending on the applied voltage.
  Specific Multimeter :
  —07411-0020000 (KOWA Digital type)
  —07308-0020001 (SANWA Analogue type)
  —TH-5H (KOWA Analogue type)
- Select the following range :
  SANWA : ×kΩ
  KOWA : ×100Ω
- An old battery stored in the multimeter could cause inaccurate readings. Check the battery if the test results are not as expected.
- When using the KOWA multimeter, remember value that all readings should be multiplied by 100.

Replace the regulator/rectifier unit if the resistance value between the terminals is abnormal.



RECTIFIER PORTION Unit : kΩ

Probe⊕ / Probe⊖	1	4	5	6	7
1		∞	∞	∞	∞
4	0.5–50		∞	∞	∞
5	0.5–50	∞		∞	∞
6	0.5–50	∞	∞		∞
7	0.5–50	0.5–50	0.5–50	0.5–50	

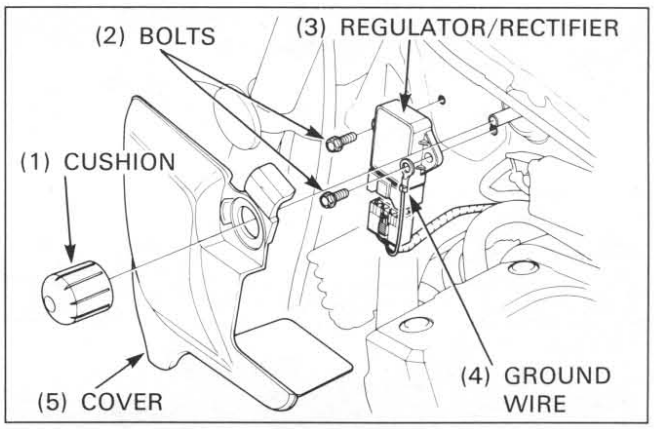
REGULATOR PORTION Unit : kΩ

Probe⊕ / Probe⊖	2	3	7
2		1–30	0.5–20
3	0.5–30		1–50
7	0.5–20	0.5–30	

Removal/Installation

Remove the fuel tank (page 2-4).
Remove the fuel tank front cushion and left front side cover.
Disconnect the regulator/rectifier connector.
Remove the mounting bolt and regulator/rectifier unit.

Installation is in the reverse order of removal.



Alternator

NOTE

- It is not necessary to remove the stator to make this test.

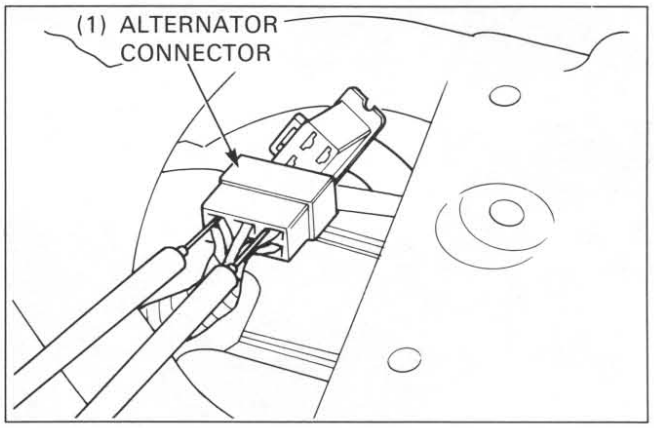
Disconnect the alternator 4P connector.

Measure the resistance between the two Yellow wire terminals, and between the White and Black wire terminals.

Standard :

Yellow - Yellow	:	**0.4-0.6Ω (20°C/68°F)**
White - Black	:	**2.1-2.6Ω (20°C/68°F)**

Replace the stator if the resistance is out of specification or if there is continuity between the Yellow or White wire terminal and ground.



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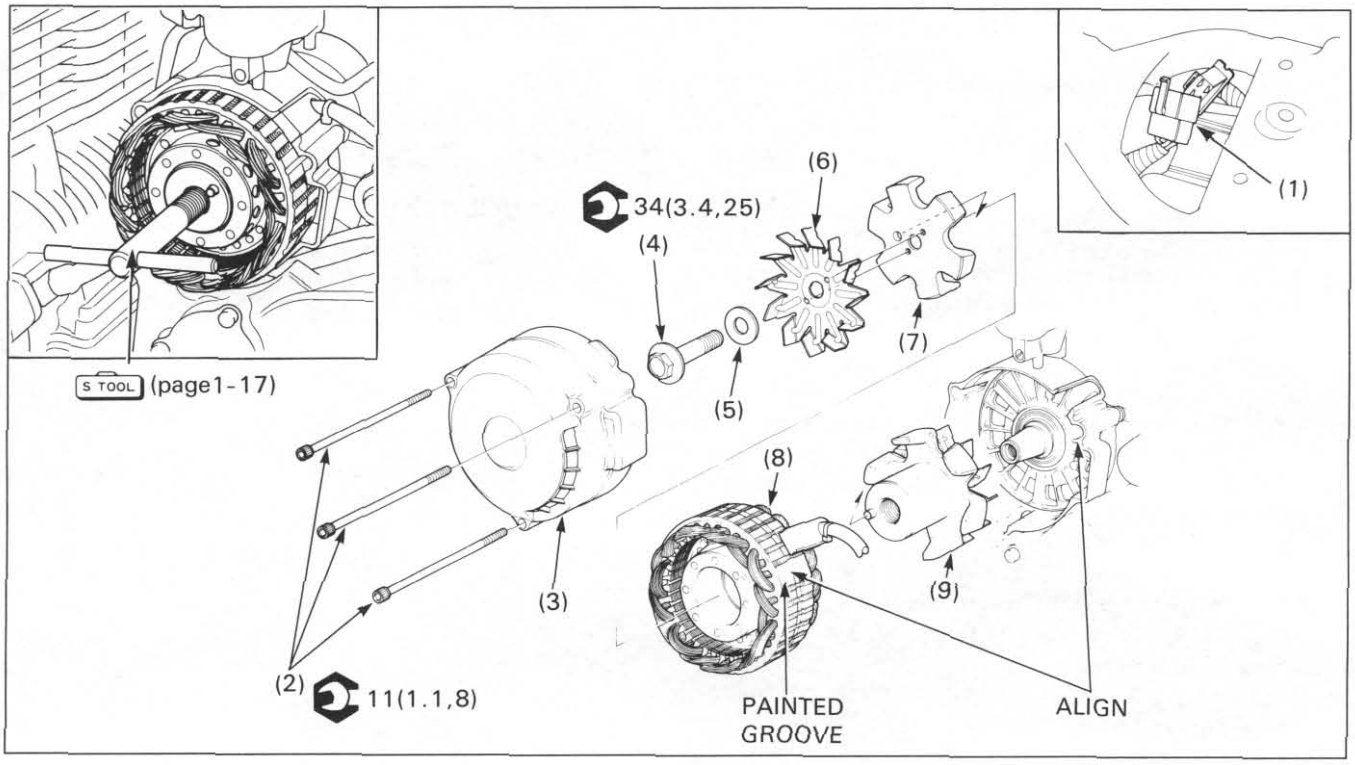
Alternator Removal/Installation



NOTE

- For alternator shaft/shaft bearing replacement, see page 9-12.

Requiste Service

- Left side cover removal/installation (page 2-3)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Alternator wire connector	1	
(2)	Alternator cover bolt	3	
(3)	Alternator cover	1	
(4)	Alternator rotor bolt	1	When removing and intalling, shift the transmission into gear and apply the rear brake.
(5)	Washer	1	
(6)	Fan B	1	To install, align the holes with the holes in rotor B.
(7)	Rotor B	1	Install with the hole aligned with the boss on rotor A.
(8)	Stator assembly	1	At installation, align the painted groove with upper right groove for the alternator cover mounting bolt.
(9)	Rotor A/fan A	1	

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14. Ignition System

Service Information

⚠ WARNING

- **If the engine must be running to do some work, make sure the area is well-ventilated. Never run the engine in an enclosed area. The exhaust contains poisonous carbon monoxide gas that may cause loss of consciousness and lead to death.**

CAUTION

- **Some electrical components may be damaged if terminals or connectors are connected or disconnected while the ignition switch is ON and current is present.**

- When checking the ignition system, always follow the steps in the troubleshooting flow chart (page 14-3).
- The ignition control module may be damaged if dropped.Also, if the connector is disconnected when current is present, the excessive voltage may damage the ignition control module. Always turn off the ignition switch before servicing.
- The transistorized ignition uses an electrically controlled ignition timing system. No adjustments can be made to the ignition timing.
- A rough diagnosis can be made by identifying the cylinder whose spark timing is incorrect.
- A faulty ignition system is often related to poorly connected or corroded connectors. Check those connections before proceeding.
- Use spark plugs of the correct heat range. Using the wrong spark plugs can damage the engine. Refer to section 2 of the Common Service Manual.
- Make sure the battery is adequately charged. Using the starter motor with a weak battery results in a slower engine cranking speed as well as no spark at the spark plugs.
- For side stand inspection, refer to section 25 of the Common Service Manual.
- For neutral switch inspection, refer to page 16-8.
- For the ignition switch and engine stop switch inspection, check for continuity using the chart on the Wiring Diagram, page 17-1. Disconnect each switch connector inside the headlight case (page 1-21) ahd check it.
- For side stand inhibitor system instructions, see page 14-5 "NOTE"of the troubleshooting.

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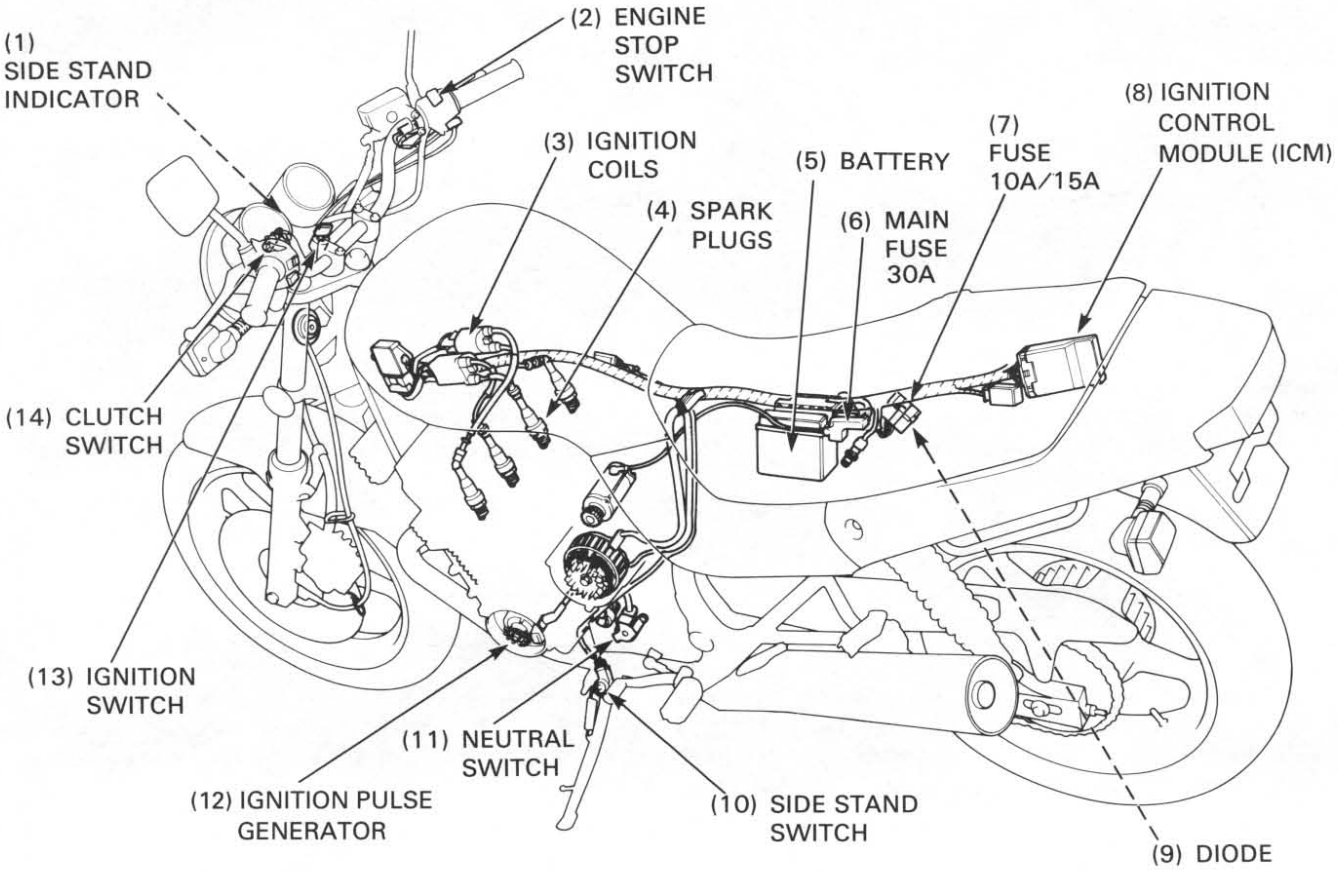
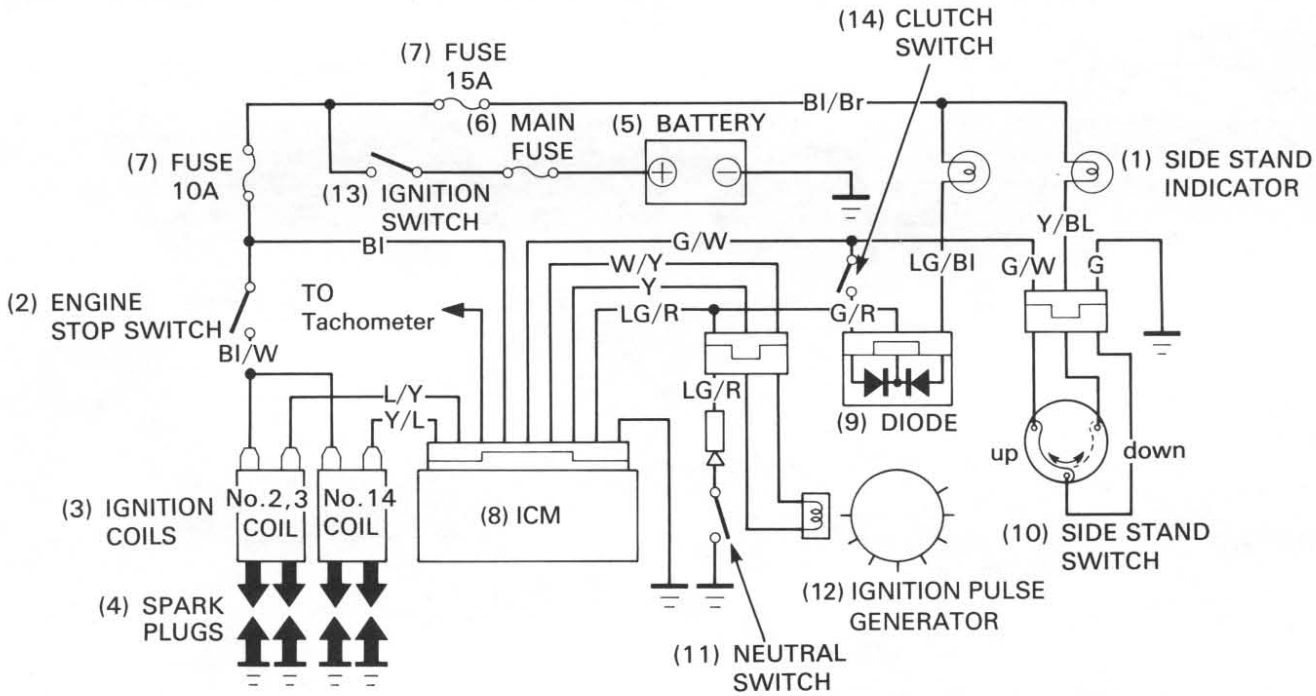
System Location





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Troubleshooting

No Spark At All Plugs (Faulty Input System)

- If there is no spark at all plugs, the problem could be at the input of the ignition system (ignition pulse generator, power input circuit of the ignition control module (ICM), neutral switch, side stand switch or ICM).

Check for loose or poorly connected ICM connector.
- Abnormal → • Poorly connected connector
- Normal ↓

Check for loose or poorly connected ignition coil connectors.
- Abnormal → • Poorly connected connectors
- Normal ↓

Check if battery voltage is measured between power input line (Black) and ground (Green) at the ICM connector with the ignition switch ON and the engine stop switch at RUN (page 14-6).
- No voltage →
  - Faulty ignition switch or engine stop switch
  - Open circuit in wire harness
  - Loose or poor contact of related circuit connectors
- Battery voltage measured ↓

Measure the ignition pulse generator resistance at the ICM connector (page 14-6).
- Abnormal → Check the ignition pulse generator (page 14-7)
  - Normal
    - Open circuit between the ICM and ignition pulse generator
    - Loose or poor contact of the ignition pulse generator connector
  - Abnormal
    - Faulty ignition pulse generator
- Normal ↓

Check the neutral switch for continuity at the ICM connector (page 14-6).
- Abnormal → Check the neutral switch (page 16-8)
  - Normal
    - Open circuit between the ICM and neutral switch
    - Loose or poor contact of the neutral switch connectors
  - Abnormal
    - Faulty neutral switch
- Normal ↓

Check the side stand switch at the ICM connector (page 14-6).
- Abnormal → Check the side stand switch.
  - Normal
    - Open circuit between the ICM and side stand switch
    - Loose or poor contact of the side stand switch connector
  - Abnormal
    - Faulty side stand switch
- Good ↓
  - Faulty ICM

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No Spark At Either Ignition Group

- If there is no spark at either group, the problem is suspected in the primary coil side of the ignition system (ignition coil, or unit and ignition coil circuit).

Switch the ignition coil primary terminal connection between the faulty pair and good pair. Try spark test again.
→ "No Spark" condition remains with faulty pair → Remove the faulty pair ignitioin coil and check the ignition coil resistance (page 14-7).
→ Abnormal
- Faulty ignition coil
- Faulty spark plug wire

Switch the ignition coil primary terminal connection between the faulty pair and good pair. Try spark test again.
→ "No Spark" condition shifts to other pair

Measure resistance of the ignition primary coil at spark unit connector (page 14-6).
→ Out of standard value
- Poor or loose contact of ignition coil connectors.
- Open circuit between the unit and ignition coil

Measure resistance of the ignition primary coil at spark unit connector (page 14-6).
→ Good
- Faulty spark unit

No Spark At One Plug (Trouble In Secondary Coil Side)

- Faulty spark plug is most likely.

Replace (suspected bad spark plug) with known good spark plug and conduct spark test.
→ Spark
- Original spark plug no good.

Replace (suspected bad spark plug) with known good spark plug and conduct spark test.
→ No spark

Put the spark plug wire on and measure resistance of ignition secondary coil (page 14-7).
→ Normal → conduct spark test on good ignition coil.
→ Spark

Put the spark plug wire on and measure resistance of ignition secondary coil (page 14-7).
→ Out of standard value

Remove the spark plug wire,and measure the resistance of the ignition secondary coil (page 14-7).
→ Out of standard value
- Faulty ignition coil

Remove the spark plug wire,and measure the resistance of the ignition secondary coil (page 14-7).
→ Good
- Poor contact of spark plug wire
- Faulty spark plug wire

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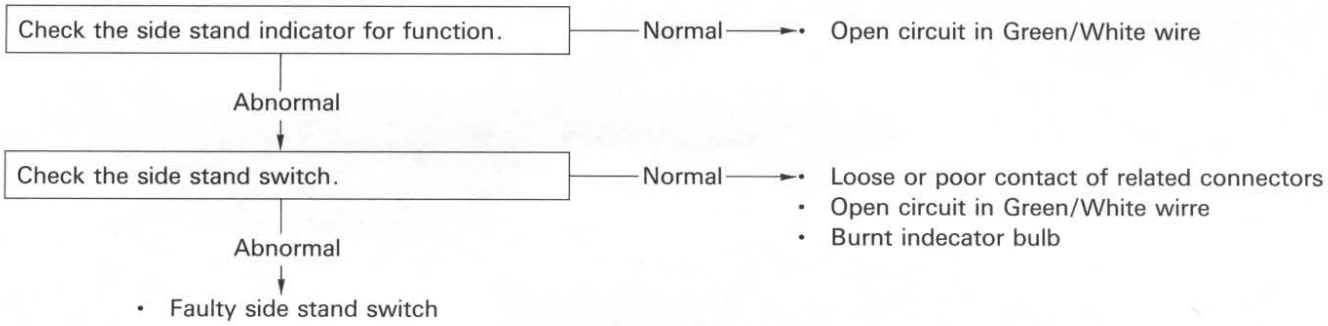
Engine Starts, But Side Stand Switch Does Not Function At All.

NOTE

The side stand switch should function as follows :
- When the transmission is shifted into a gear from neutral with the side stand down, the ignition shuts off and the engine will stop.
- When in neutral, the neutral switch line (a) of the spark unit is connected to ground via the neutral switch. When the side stand is up, the side stand switch line (b) of the spark unit passes to ground via the side stand switch. The spark unit monitors lines (a) and (b), and provides spark only when one or both of those lines is connected to ground via the neutral switch or the side stand switch.



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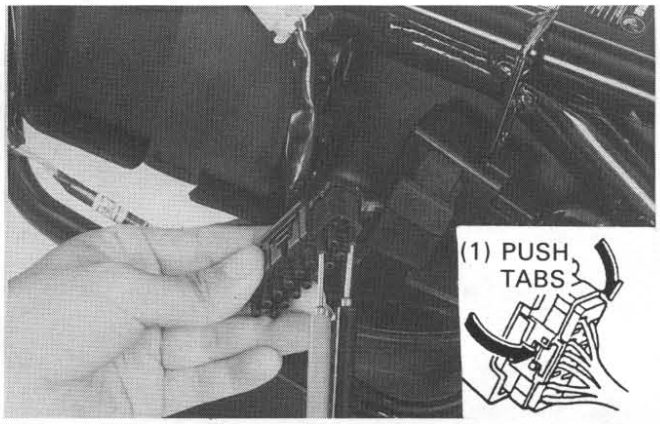
System Inspection

NOTE

- Check the system components and lines step-by-step according to the troubleshooting chart on pages 14-3, 4,5.

Remove the seat (page 2-3).
Disconnect the connector from the ICM and conduct these tests at the connector.



Item	Terminals	Standard (20°C/68°F)
Power source input line	Black (+) and Green (−)	Battery voltage should register with the ignition switch ON and the engine stop switch RUN.
Ignition primary coil	No.1-4 : Black and Yellow/Blue No.2-3 : Black and Blue/Yellow	2.6 — 3.2Ω
Ignition pulse generator coil	Yellow and White/Yellow	297 —363Ω
Neutral switch line	Light Green/Red and Ground	Continuity in neutral No continuity in any gear except neutral
Side stand switch line	Green/White and Ground	Continuity with the side stand up No continuity with the side stand down
Ground line	Green and body ground	Continuity.

Ignition Coil

Removal/Installation

Remove the fuel tank (page 2- 4).
Remove the fuel tank front cushions and front side covers (page 13-7).

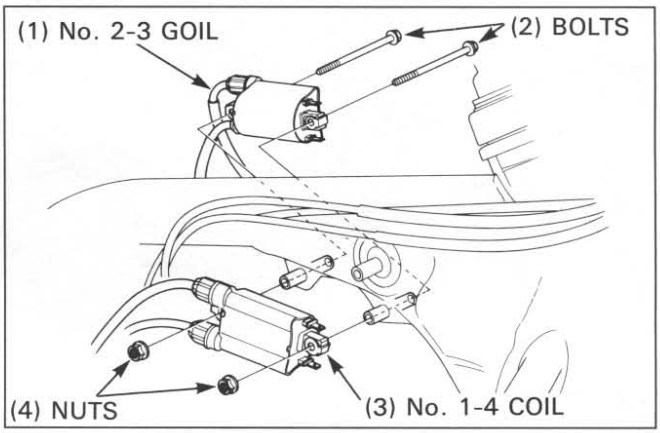
Disconnect the spark plug caps from the spark plugs.
Disconnect the ignition primary terminals from the coils and remove the mounting bolts and nuts.

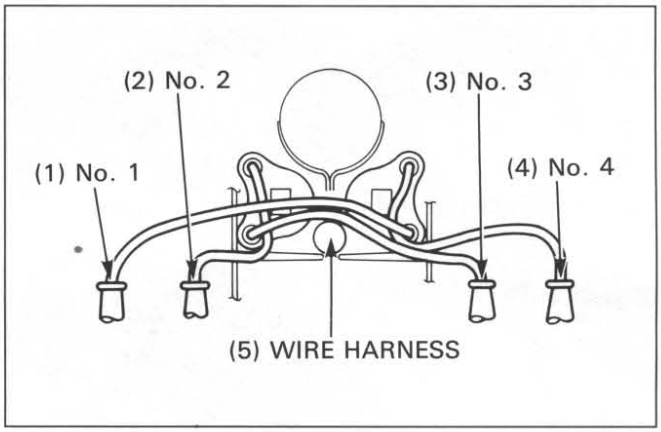
Remove the ignition coils.

Install the ignition coils in the reverse order of removal.

NOTE

- Route the spark plug wires properly as shown.





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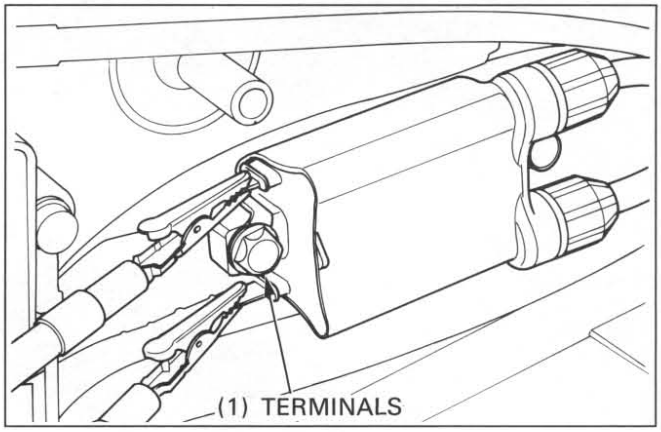
Inspection

Disconnect the ignition coil primary terminals under the fuel tank and measure the primary coil resistance of the ignition coil.

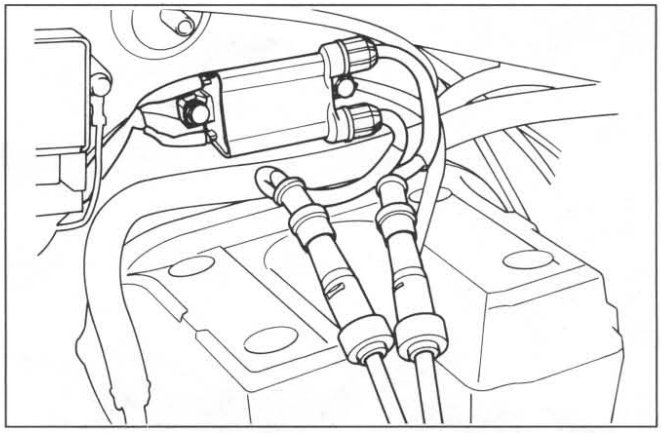
Standard : 2.6 — 3.2Ω (20°C/68°F)



Disconnect the spark plug caps from the spark plug and measure the secondary coil resistance with the spark plug wire at each ignition pair :

No.1/4 secondary coil : between cylinders 1 and 4 wire
No.2/3 secondary coil : between cylinders 2 and 3 wire

Standard : 18 — 22kΩ (20°C/68°F)

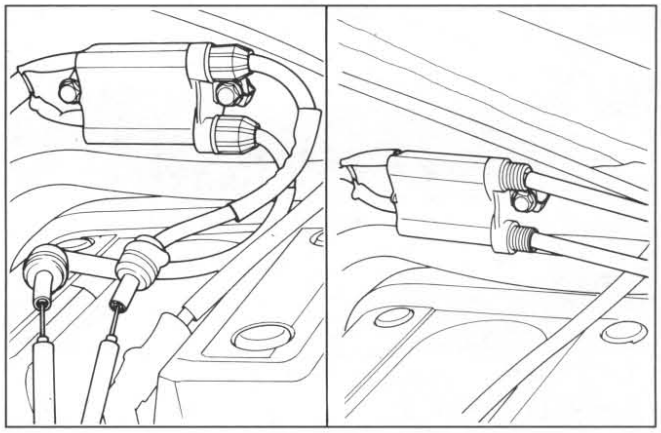


If the resistance is ∞ (open wire), disconnect the spark plug cap and measure the secondary coil resistance as shown.

Standard : 13 — 17kΩ (20°C/68°F)

If the resistance is ∞ (open wire), disconnect the spark plug wire and measure the secondary coil resistance as shown.

Standard : 13 — 17kΩ (20°C/68°F)



Ignition Pulse Generator

Inspection

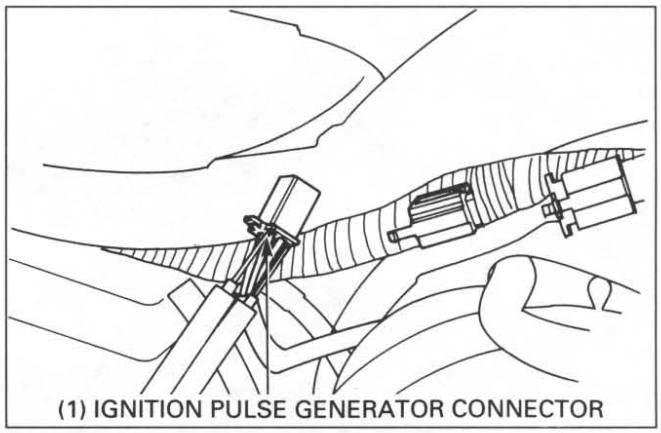
NOTE

- It is not necessary remove the ignition pulse geneator from the engine.

Remove the fuel tank (page 2- 4).
Disconnect the ignition pulse generator 4P connector.

Measure the resistance between the Yellow and White/ Yellow terminals.

Standard : 297 — 363Ω (20°C/68°F)



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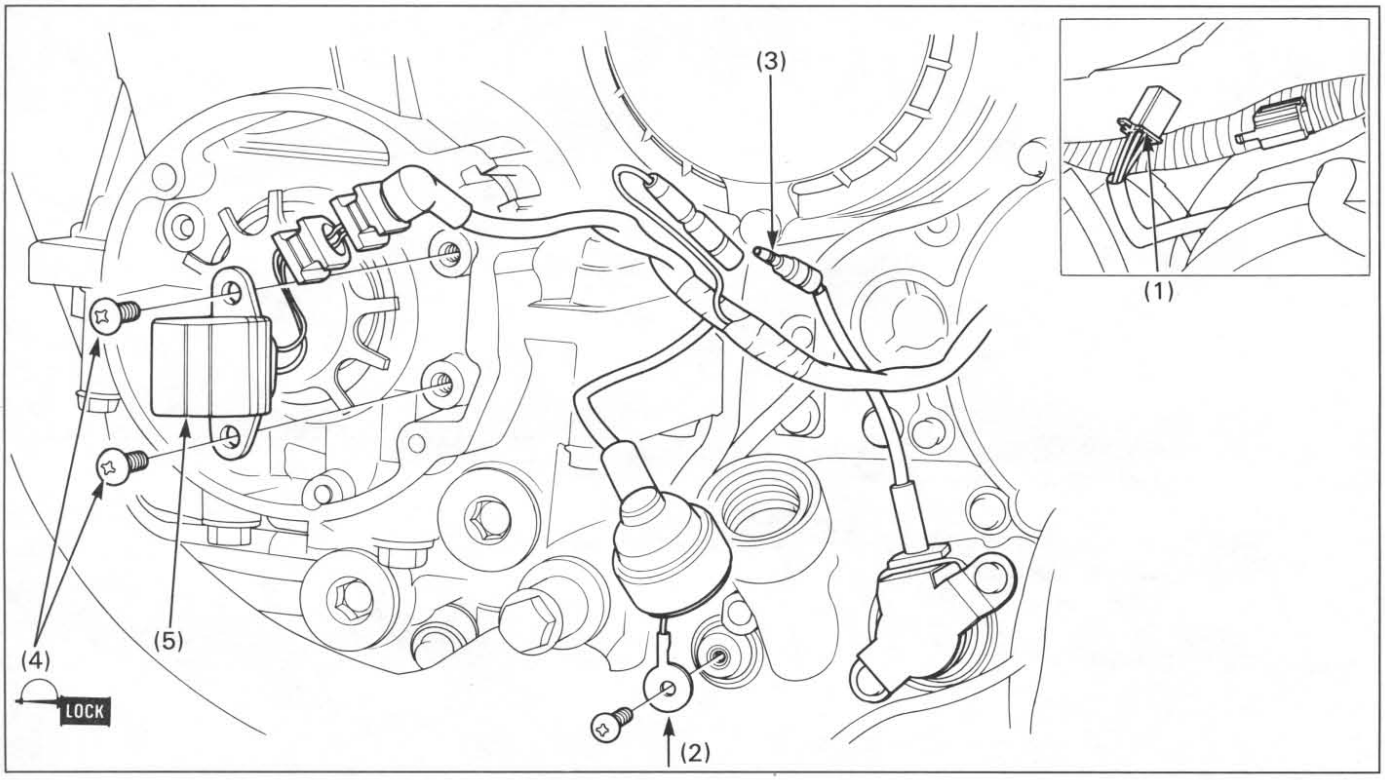
Ignition Pulse Generator Removal/Installation



CAUTION

- **Be careful not to damage the wire harnesses by pinching them between the sprocket cover and engine.**

NOTE

- Route the wire harnesses properly (page 1-25).

Requisite Service

- Left crankcase cover removal/installation (page 14-9)
- Drive sprocket cover removal/installation (page 8-9)
- Fuel tank removal/installation (page 2-4)

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Ignition pulse generator connector	1	
(2)	Oil pressure switch terminal	1	
(3)	Neutral switch connector	1	
(4)	Ignition pulse generator screw	2	
(5)	Ignition pulse generator	1	

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Ignition Timing

Warm up the engine.
Stop the engine and connect a timing light to the No.1 cylinder spark plug wire.

NOTE

- Read the instructions for timing light for operating.

Remove the left crankcase cover.

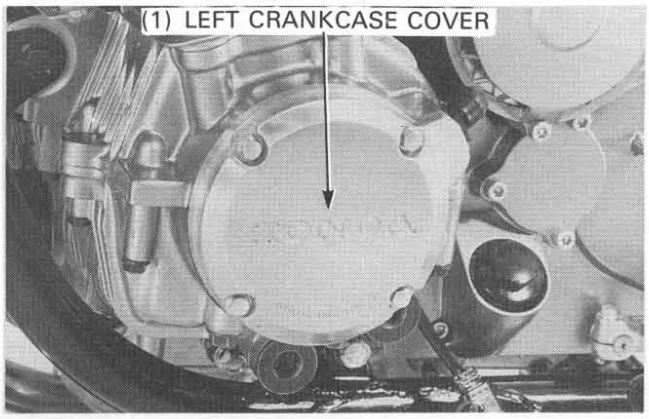
⚠WARNING

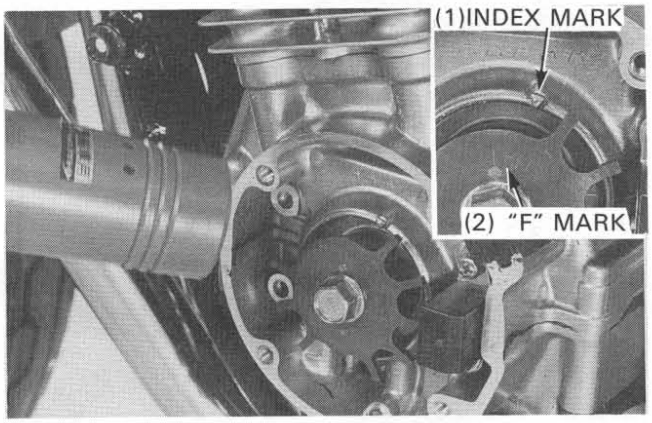
- **If the engine must be running to do some work, make sure the area is well ventilated. Never run the engine in an enclosed area. The exhaust contains poisonous carbon monoxide gas that may cause loss of consciousness and lead to death.**

Start the engine and allow it to idle.
Inspect the ignition timing.
The timing is correct if the "F"mark aligns with the index mark on the crankcase at idle speed.

Idle Speed : 1,000 ± 100 rpm

Increase the engine speed, make sure the "F"mark begins to move counterclockwise at approximately 1,500 rpm.





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MEMO

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15. Electric Starter/Starter Clutch

Service Information

⚠WARNING

- **Always turn the ignition switch "OFF" before servicing the starter motor. The motor could suddenly start, causing serious injury.**

- A week battery may be unable to turn the starter motor quickly enough, or supply adequate ignition current.
- If the current is kept flowing through the starter motor to turn it while the engine is not craking over, the starter motor may be damaged.
- For the following component inspections, refer to the following pages ; for the parts locations, see page 15-2 of this manual (System Location).

Clutch switch diode	Section 24 of the Common Service Manual
Starter motor	Section 24 of the Common Service Manual
Starter relay switch	Section 24 of the Common Service Manual ("A" circuit type)
Clutch switch	Section 24 of the Common Service Manual
Neutral switch	(page 16-8)
Ignition switch	Check for continuity on the continuity chart of the Wiring Diagram, page 17-1. Disconnect the switch connector inside the headlight case (page 1-21) and check it.
Side stand switch	Section 25 of the Common Service Manual

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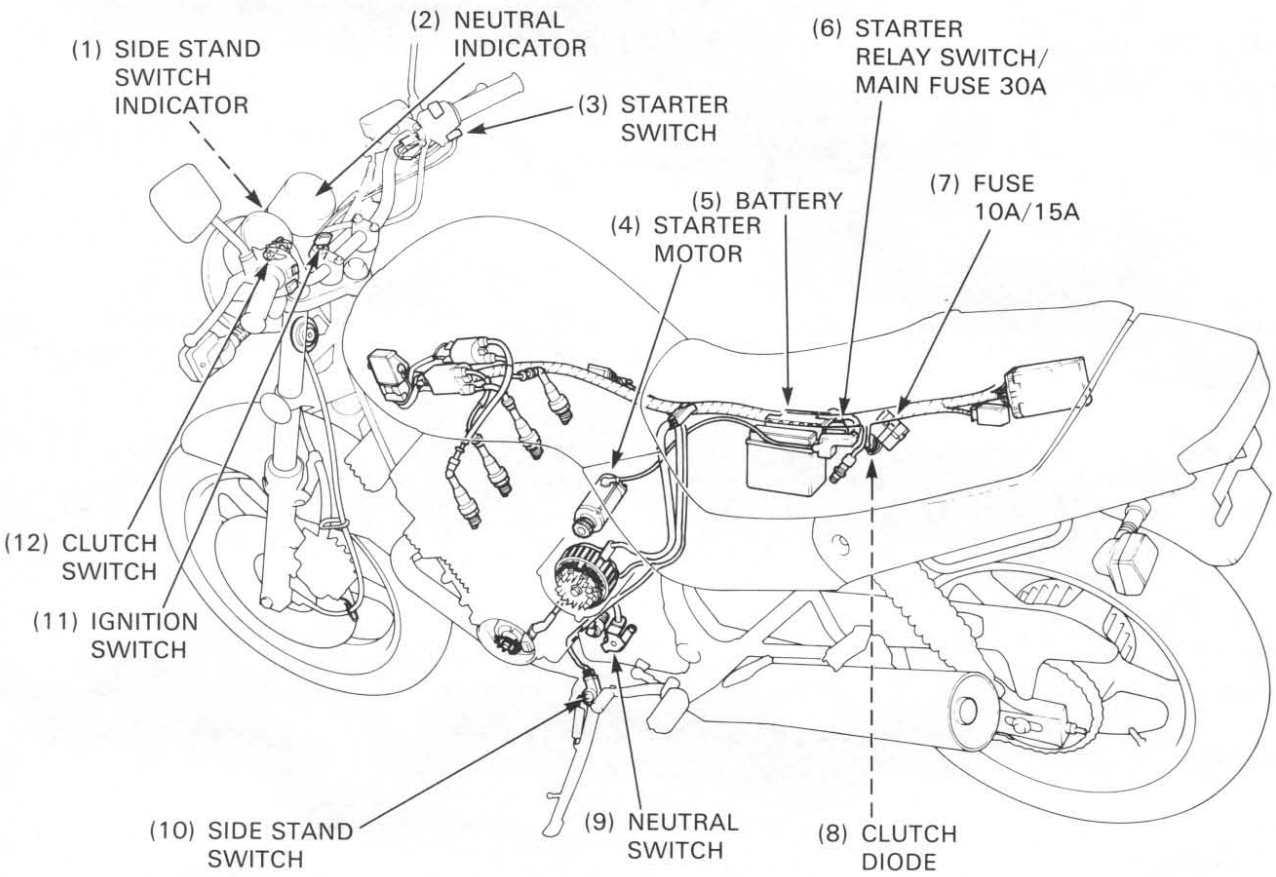
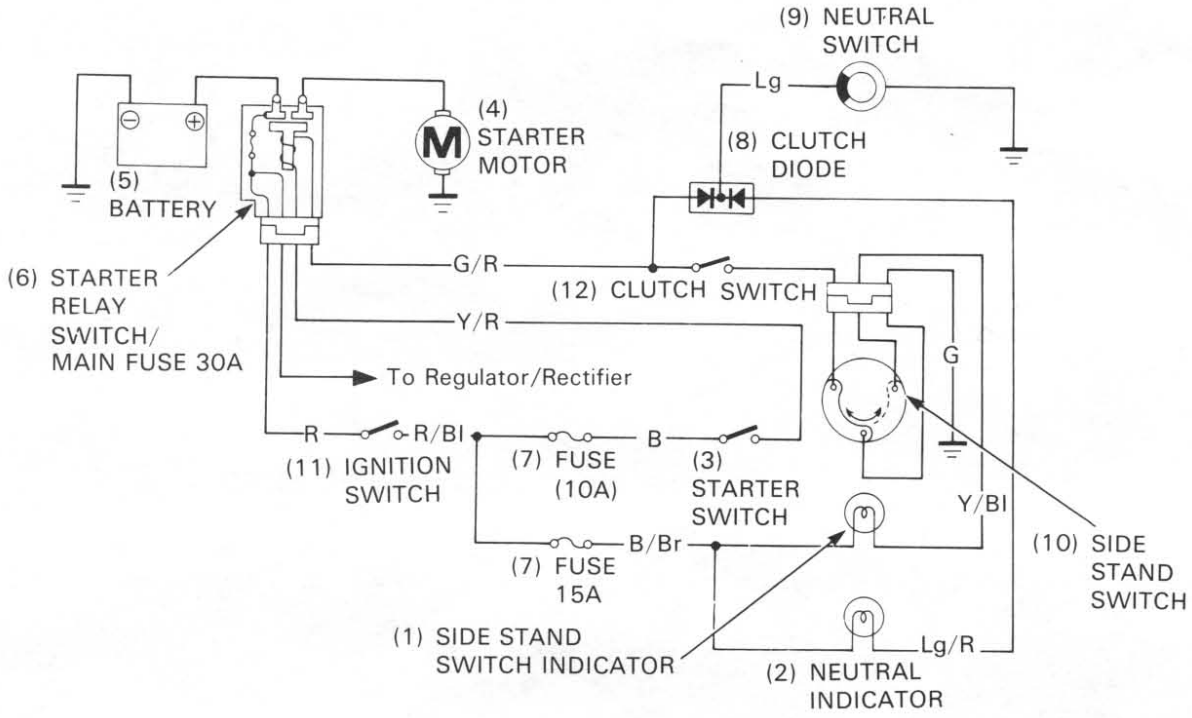
System Location





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Troubleshooting

Starter Motor Will Not Turn

- Check for a blown out main or sub fuses before servicing.
- Make sure the battery is fully charged and in good condition.

Check for loose or poorly connected battery terminals, and opened or shorted battery cable.
- Abnormal →
  - Poorly connected battery terminals
  - Open or short circuit in battery cable

Normal ↓

Check for loose or poorly connected starter relay switch terminals and 4P connector.
- Abnormal → Poorly connected terminals or 4P connector

Normal ↓

Check for loose or poorly connected starter motor cable, and opened cable.
- Abnormal →
  - Poorly connected motor cable
  - Open circuit in motor cable

Normal ↓

With the ignition switch "ON", push the starter switch and check for a "click" sound from the starter relay switch.
- Clicks → Connect the starter motor terminal to the battery positive terminal directly. (Because a large amount of current flows, do not use thin wires)
  - Starter motor turns →
    - Loose or disconnected starter motor cable
    - Faulty starter relay switch
  - Starter motor does not turn →
    - Faulty starter motor
- No click ↓

Disconnect starter relay switch connector, and check the relay coil ground wire lines as below for continuity :
1. Green/Red terminal-clutch switch diode-neutral switch line (with transmission in neutral and clutch lever released.)
2. Green/Red terminal-clutch switch-side stand switch line (in any gear except neutral, and with the clutch lever pulled in and the side stand up.)

- No continuity →
  - Faulty neutral switch
  - Faulty clutch switch diode
  - Faulty clutch switch
  - Faulty side stand switch
  - Loose or poor contact of connector
  - Open circuit in wire harness

Continuity ↓

Connect the starter relay switch connector. With the ignition switch ON and the starter switch pushed, measure the starter relay voltage at the starter switch connector (between Yellow/Red (+) and ground (−)).
- No voltage →
  - Faulty ignition switch
  - Faulty starter switch
  - Blown out main or sub fuses
  - Loose or poor contact of connector
  - Open circuit in wire harness

Voltage appeared ↓

Check the starter relay switch operation.
- Normal → Loose or poor contact of the starter relay switch connector
- Abnormal → Faulty starter relay switch

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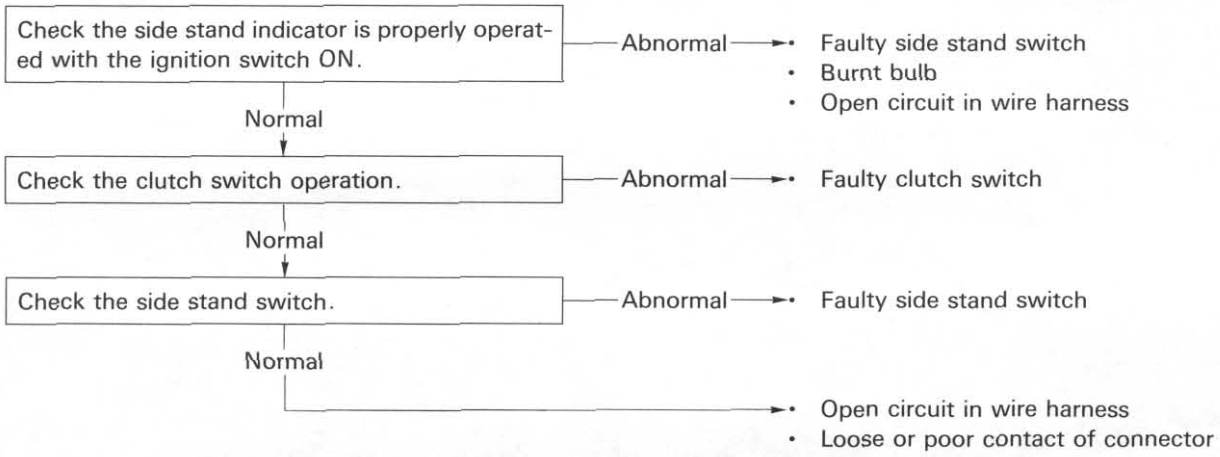
The starter motor turns when the transmission is in neutral, but does not turn with the transmission in any position except neutral, with the side stand up and the clutch lever pulled in.



Starter Motor Turns Slowly

- Low specific gravity in battery (or dead battery)
- Poorly connected battery terminal cable
- Poorly connected starter motor cable
- Faulty starter motor
- Poorly connected battery ground cable

Starter Motor Turns, But Engine Does Not Turn

- Starter motor is runnning backwards
  - — Case assembled improperly
  - — Terminals connected improperly
- Faulty starter clutch
- Damaged or faulty starter pinion
- Damaged pinion gears

Starter Relay Switch "Clicks", But Engine Does Not Turn Over

- Crankshaft does not turn due to engine problems
- Excessive pinion gear friction

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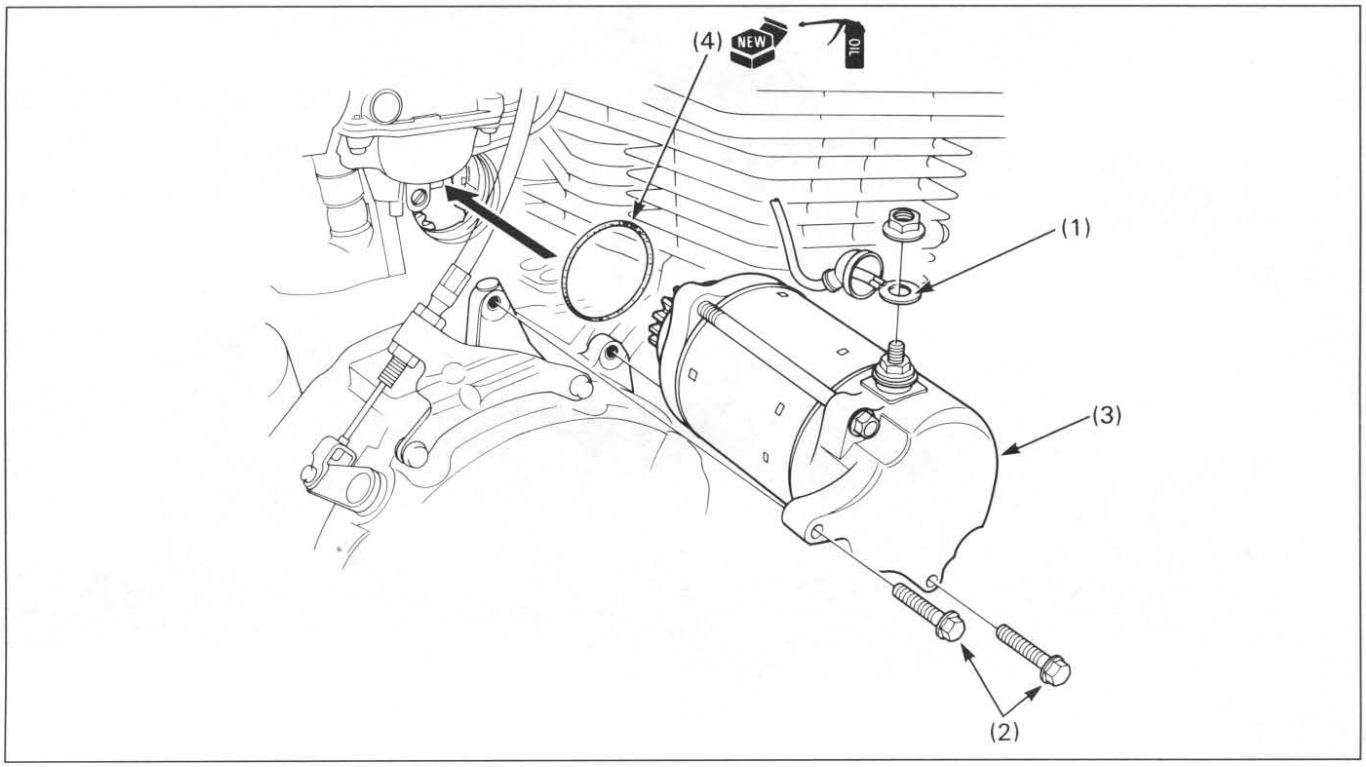
Starter Motor Removal/Installation



⚠WARNING

- **Always turn the ignition switch OFF.**

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Starter motor cable	1	
(2)	Starter motor mounting bolt	2	
(3)	Starter motor	1	
(4)	O-ring	1	

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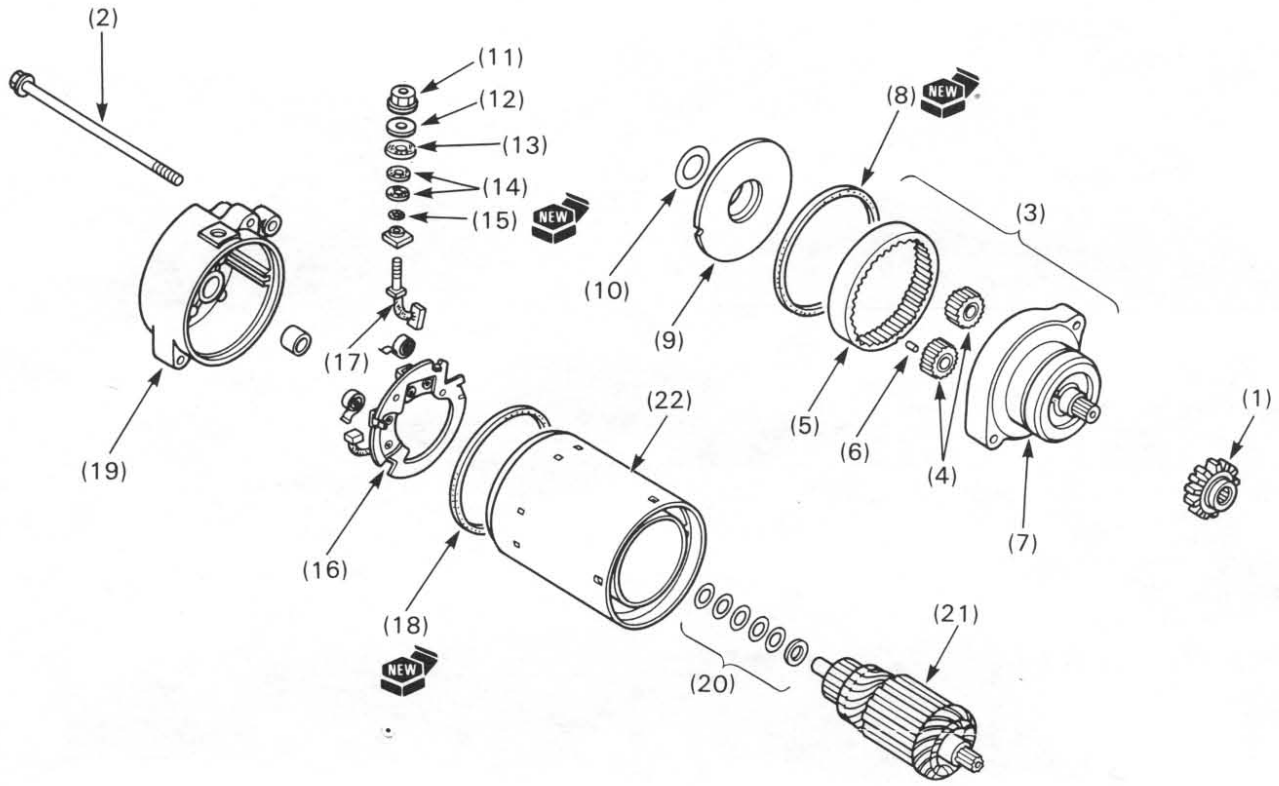
Starter Motor Disassembly/Assembly



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Requisite Service

- Starter motor removal/installation (page 15-5)

	Procedure	Q'ty	Remarks
	Disassembly Order		Assembly is in the reverse order of disassembly.
(1)	Starter motor pinion gear	1	
(2)	Set screw	2	
(3)	Front cover assembly	—	
(4)	— idle pinion	2	
(5)	— ring gear	1	
(6)	— pin	1	
(7)	— front cover	1	
(8)	O-ring	1	
(9)	Separator	1	
(10)	Washer	1	
(11)	Brush terminal holding nut	2	
(12)	Washer	1	
(13)	Insulated washer (larger)	1	
(14)	Insulated washer (smaller)	2	
(15)	O-ring	1	
(16)	Brush holder assembly	—	
(17)	Brush and terminal	1	Aligh the holder tab with the rear cover groove.
(18)	O-ring	1	
(19)	Rear cover	1	
(20)	Shims	—	Record and store the shims in the same order they were installed in the original positions.
(21)	Armature	1	
(22)	Motor case	1	

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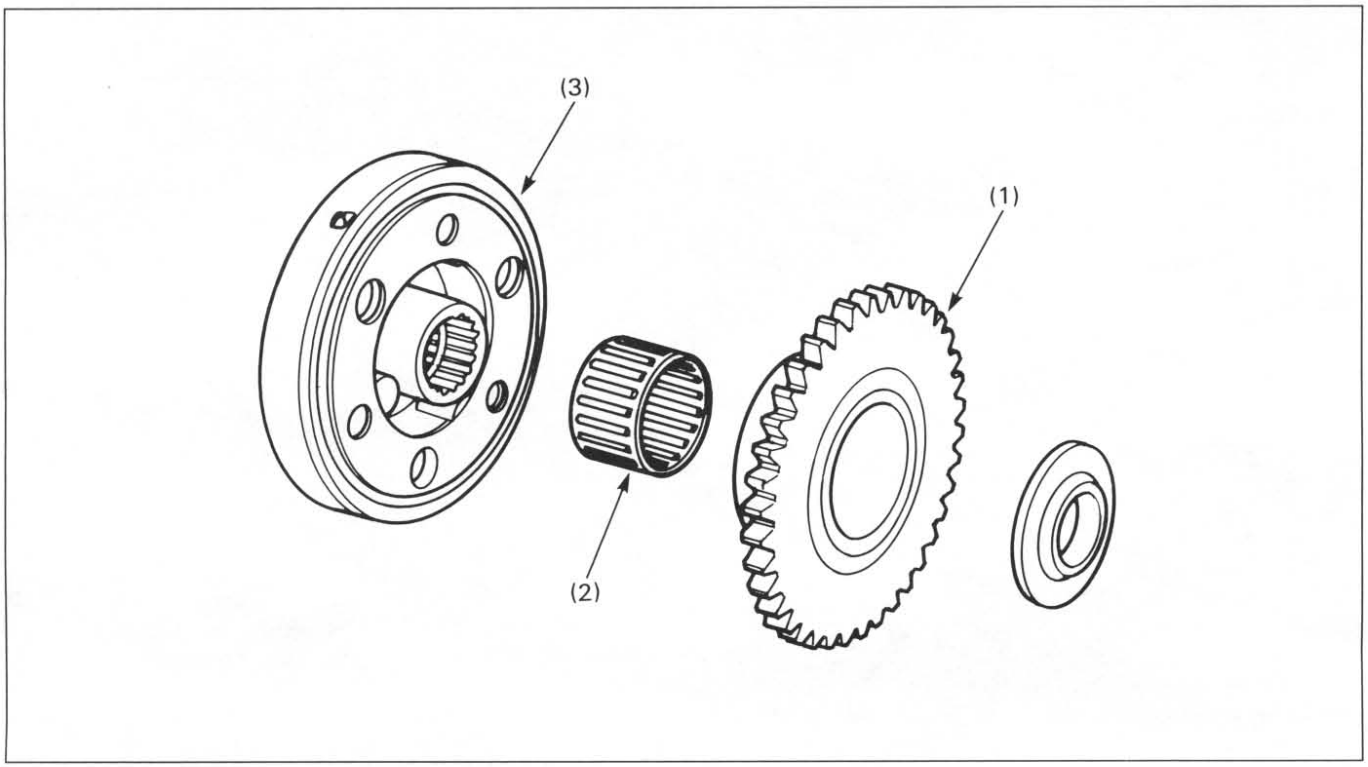
Starter Clutch Disassembly/Assembly



Requisite Service

- Crankshaft, connecting rod removal/installatioin (page 9-10, 16)

	Procedure	Q'ty	Remarks
	Disassembly Order		Assembly is in the reverse order of disassembly.
(1)	Starter driven gear	1	
(2)	Needle bearing	1	
(3)	Starter clutch	1	At installation, make sure the starter clutch roller is installed properly into the clutch housing.

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16. Lights/Meters/Switches

Service Information

⚠ WARNING

- **The halogen headlight bulb becomes very hot while the headlight is ON, and remains hot for a while after it is turned OFF. Be sure to let it cool down before servicing.**
- **Use a flame and heated water/coolant mixature for the thermo sensor inspection. Keep all flammable materials away from the burner. Wear protective clothing, gloves and eye protection.**

- Note the following when replacing the halogen headlight bulb.
  — Wear clean gloves while replacing the bulb. Do not put finger prints on the headlight bulb, as they may create hot spots on the bulb and cause it to break.
  — If you touch the bulb with your bare hands, clean it with a cloth moistened with alcohol to prevent its early failure.
  — Be sure to install the dust cover after replacing the bulb.
- Check the battery condition before performing any inspection that requires proper battery voltage.
- A continuity test can be made with the switches installed on the motorcycle.
  For the following component locations, see page 16-2 of this manual (System Location) ; for inspections, refer to the applicable pages.

Component	Inspection method	Remarks
Clutch switch	Section 25 of the Common Service Manual	
Front brakelight switch	Section 25 of the Common Service Manual	
Horn	Section 25 of the Common Service Manual	
Handlebar switches	Check for continuity on the continuity chart of the Wiring Diagram, page 17-1.	Switch connectors are located inside the headlight case (page 1-21).
Ignition switch		
Oil pressure switch/warning light	Section 25 of the Common Service Manual	Oil pressure check : Section 4 of the Common Service Manual Oil pressure switch torque : 12 N•m (1.2 kg-m, 9 ft-lb)
Rear brakelight switch	Section 25 of the Common Service Manual	
Turn signal lights	Section 25 of the Common Service Manual	3 terminal relay.

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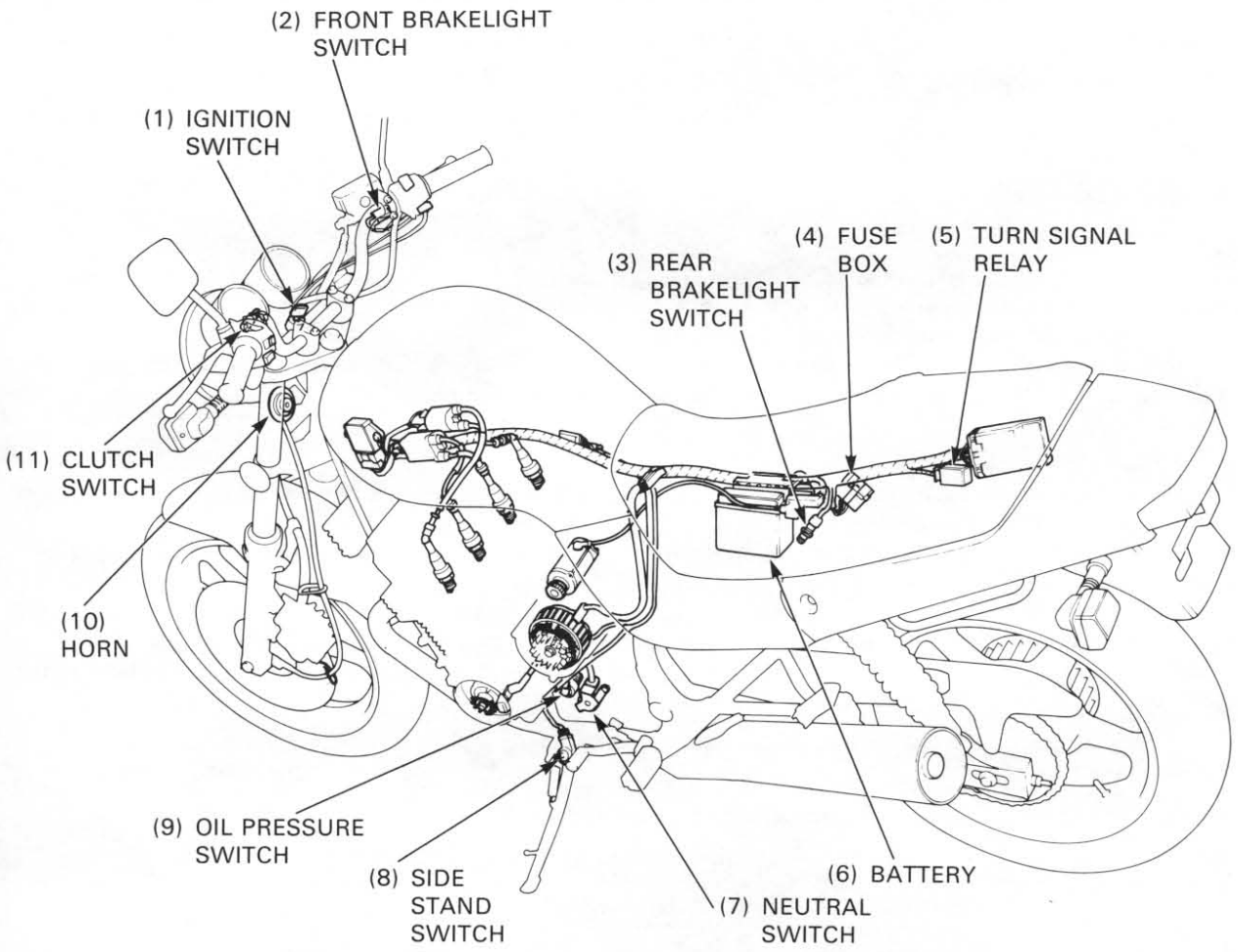
System Location



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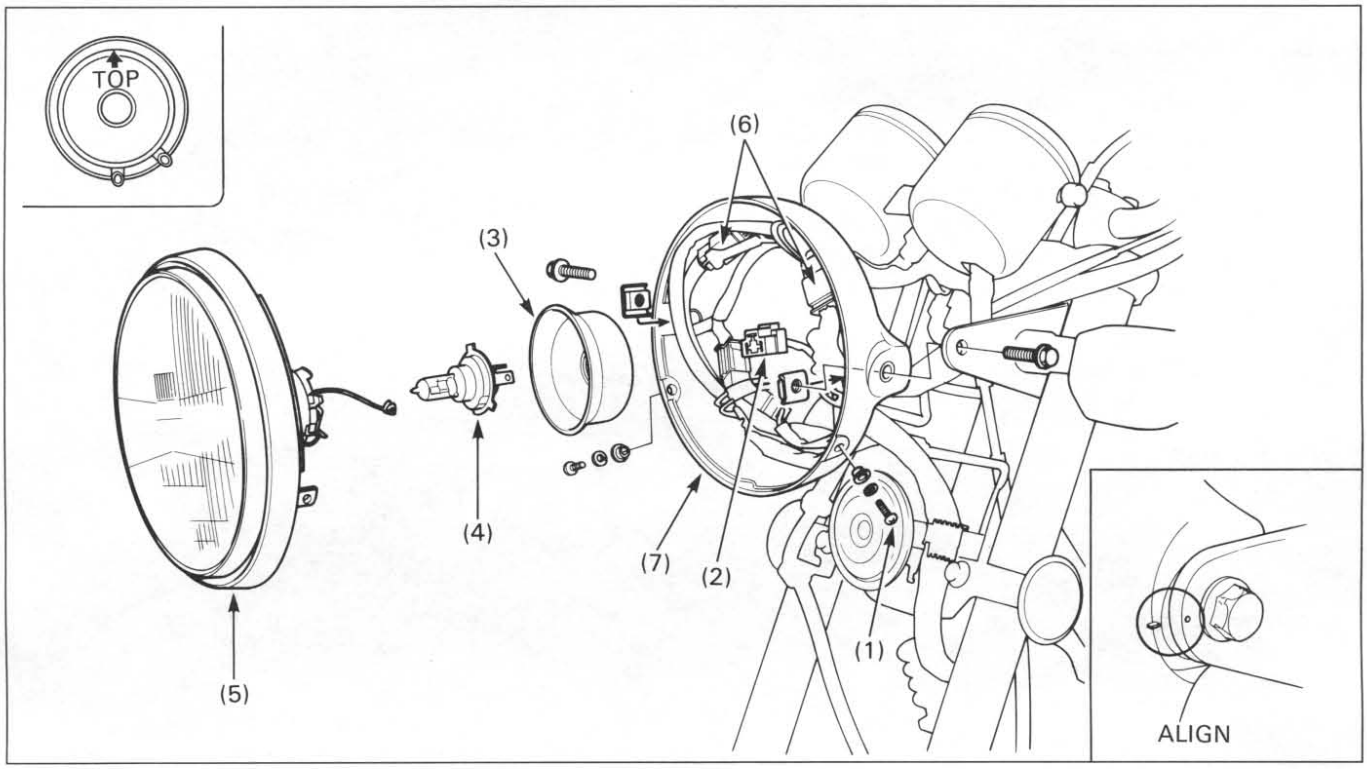
Headlight Removal/Installation



⚠ WARNING

- **The halogen headlight bulb becomes very hot while the headlight is ON, and remains hot for a while after it is turned OFF. Be sure to let it cool down before servicing.**

CAUTION

- **Wear clean gloves while replacing the bulb. Do not put finger prints on the headlight bulb, as they may create hot spots on the bulb and cause it to break.**
- **If you touch the bulb with your bare hands, clean it with a cloth moistened with alcohol to prevent its early failure.**
- **Be sure to install the dust cover after replacing the bulb.**

	Procedure	Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Screw	2	
(2)	Headlight bulb socket	1	
(3)	Dust seal	1	Install with the "TOP" mark facing up.
(4)	Headlight bulb	1	
(5)	Headlight assembly	1	
(6)	Connectors	—	Connection (page 1-21)
(7)	Headlight case	1	Align the index marks on the case and bracket.

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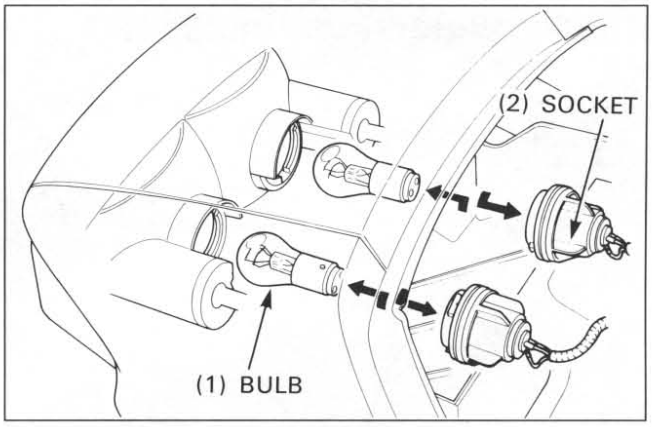
Tail/Brake Light

Remove the seat (page 2-3).

Remove the bulb socket from the tail/brake light body by turning it counterclockwise.
Remove the bulb from the socket by turning it counterclockwise and replace with a new one.

Installation is in the reverse order of removal.

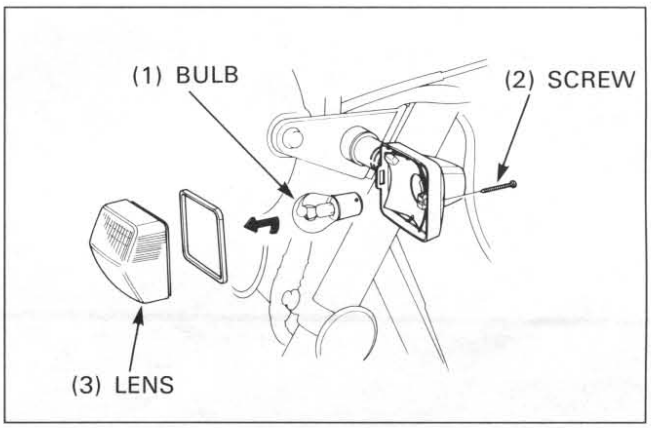


Turn Signal Bulb

Remove the mounting screw and turn signal lens.

Remove the bulb from the socket by turning it counterclockwise and replace with a new one.

Installation is in the reverse order of removal.



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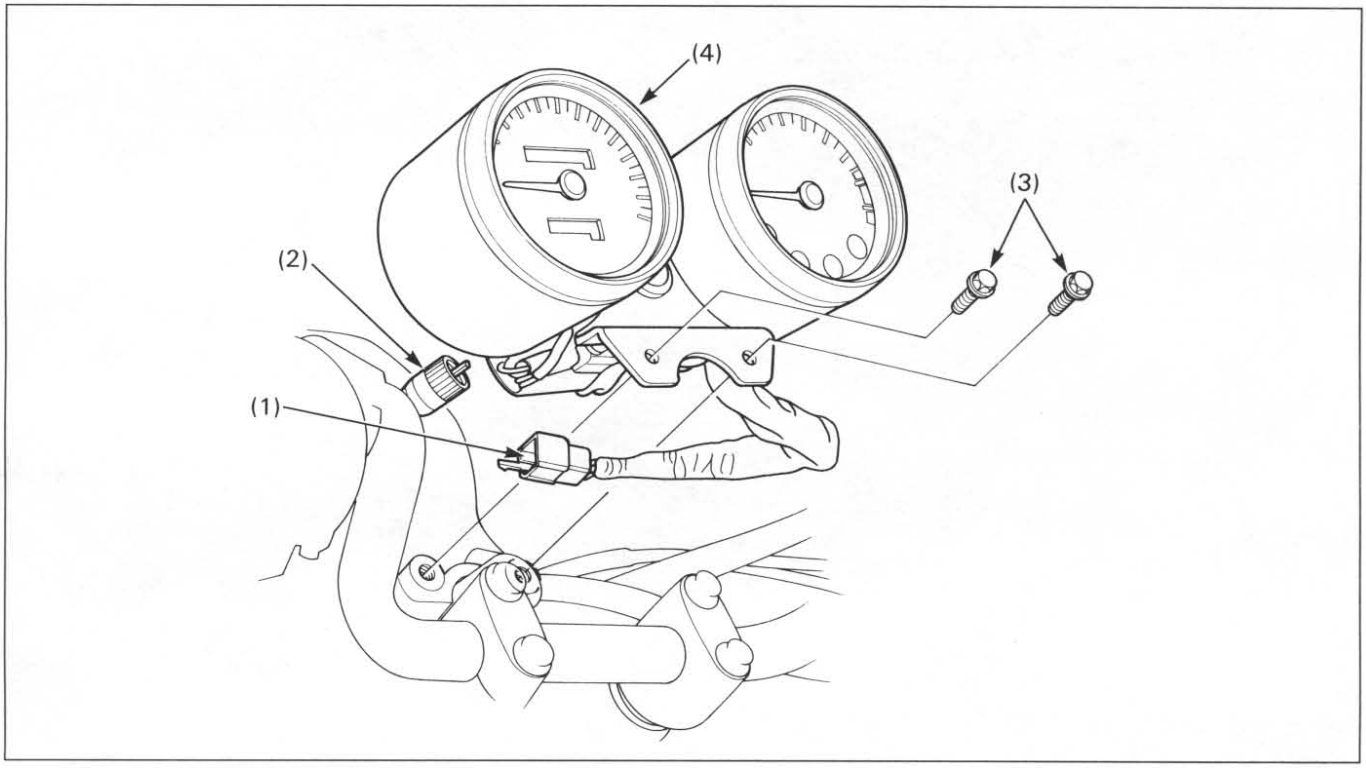
Meter Removal/Installation



Requisite service

- Headlight removal/installation (page 16-3)

Procedure		Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Meter connector	1	
(2)	Speedometer cable	1	
(3)	Speedometer mounting bolt	2	
(4)	Speedometer assembly	1	

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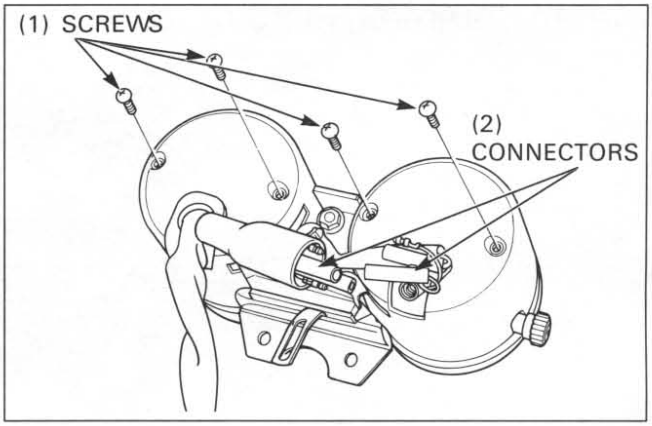
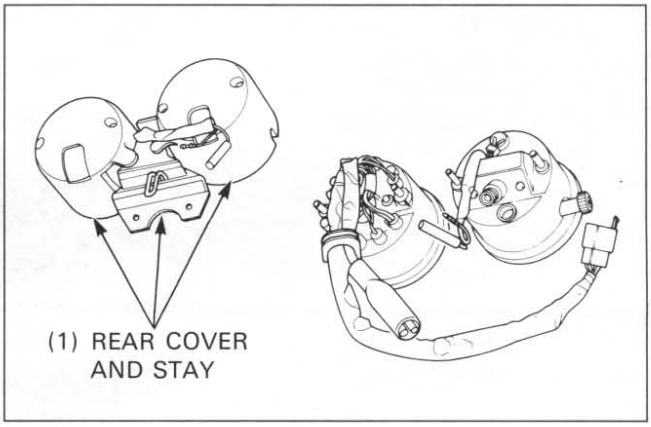
Meter Disassembly/Assembly

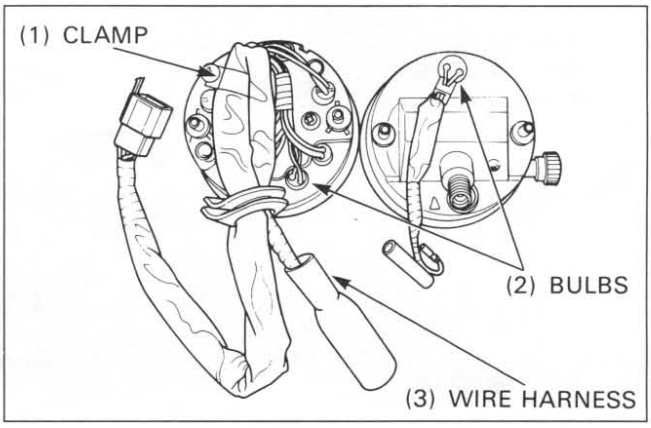
Remove the screws and disconnect the connectors.



Remove the meter rear cover and meter stay.



Pull the indicator bulbs out of the meter.
Remove the wire harness clamp.
Disconnect the meter terminals, and remove the wire harness.

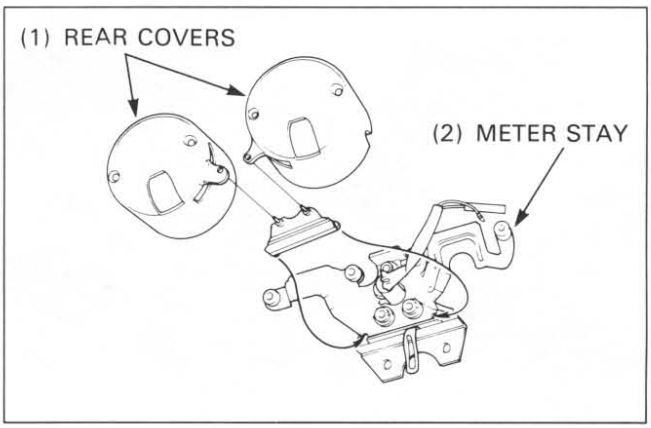


Separate the meter rear covers and meter stay.

Assemble the meters in the reverse order of disassembly.

NOTE

- Connect the proper color wire to the meter terminals.
  Y/G : Yellow/Green G : Green
  B/BR : Black/Brown



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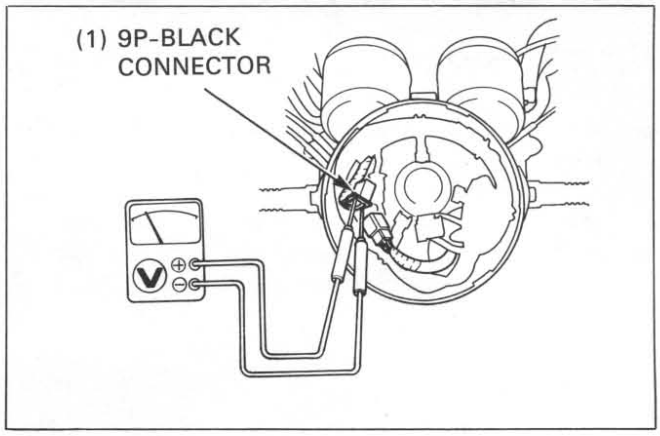
Tachometer Inspection

Remove the headlight assembly (page 16-3), and disconnect the 9P mini Black connector.

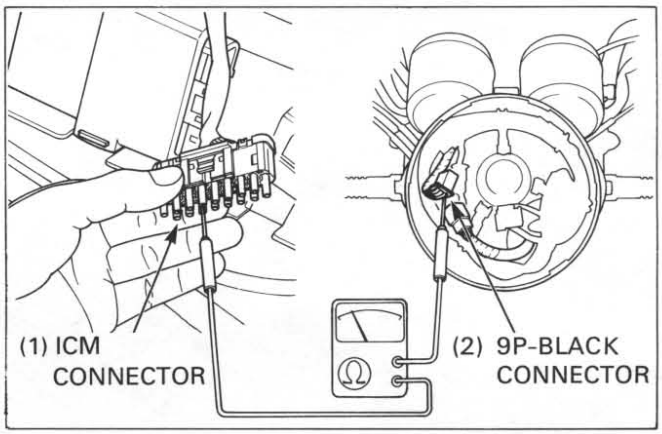
Connect a voltmeter across the Black/Brown (+) and Green (−) terminals of the main wire harness side.

Turn the ignition switch ON ; battery voltage should register.
If battery voltage dose not register, the electric tachometer is not getting power. Trace and repair the related wiring, sub fuse and/or connectors.



Disconnect the ICM connector.
Check for continuity between the Yellow/Green wire terminals of the 9P mini Black connector and the ICM connector.
There should be continuity in all cases.
If there is no continuity, replace the main wire harness.

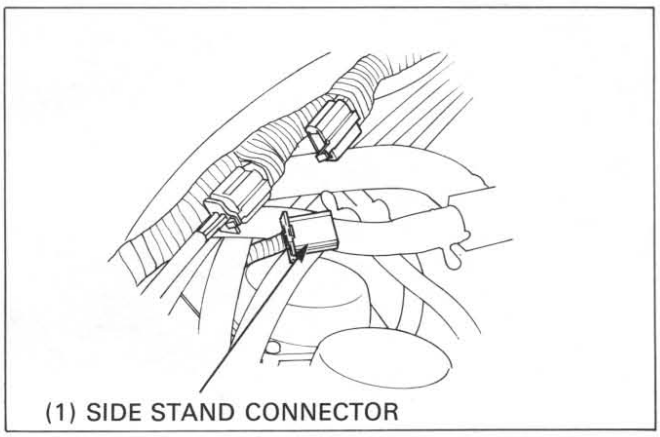
If all checks are O.K., replace the tachometer.



Side Stand Switch

Removal/Installation

Remove the fuel tank (page 2-4).
Disconnect the side stand connector.



Remove the side stand switch mounting bolt and the side stand switch.

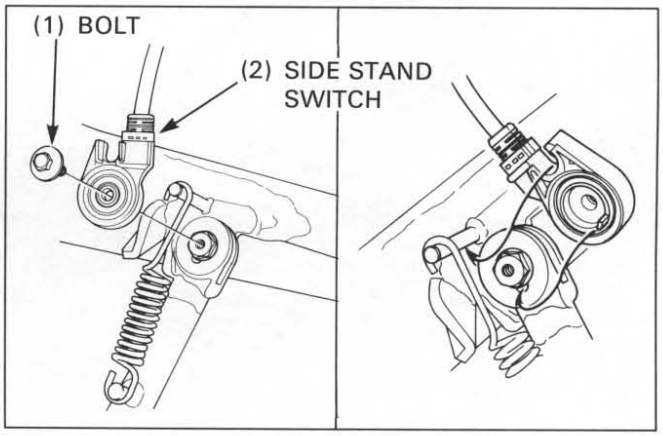
Install the switch in the reverse order of removal.

Torque : 10N·m (1.0kg-m, 7.2ft-lb)

NOTE

- Align the switch pin with the side stand hole and align the switch groove with the side stand return spring holding pin.

Route the side stand switch wire harness properly (page 1-25).



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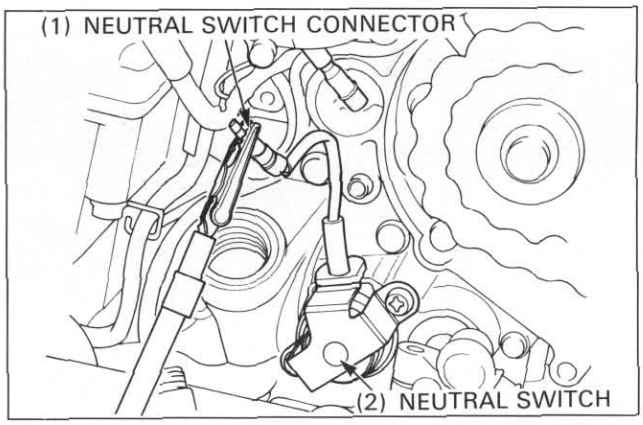
Neutral Switch

Remove the drive sprocket cover and disconnect the neutral switch connector.
Check the switch for continuity between the light green/red wire terminal and ground first with the transmission in neutral and then with the transmission in any gear.
For neutral switch replacement, refer to page 8-10, 12.



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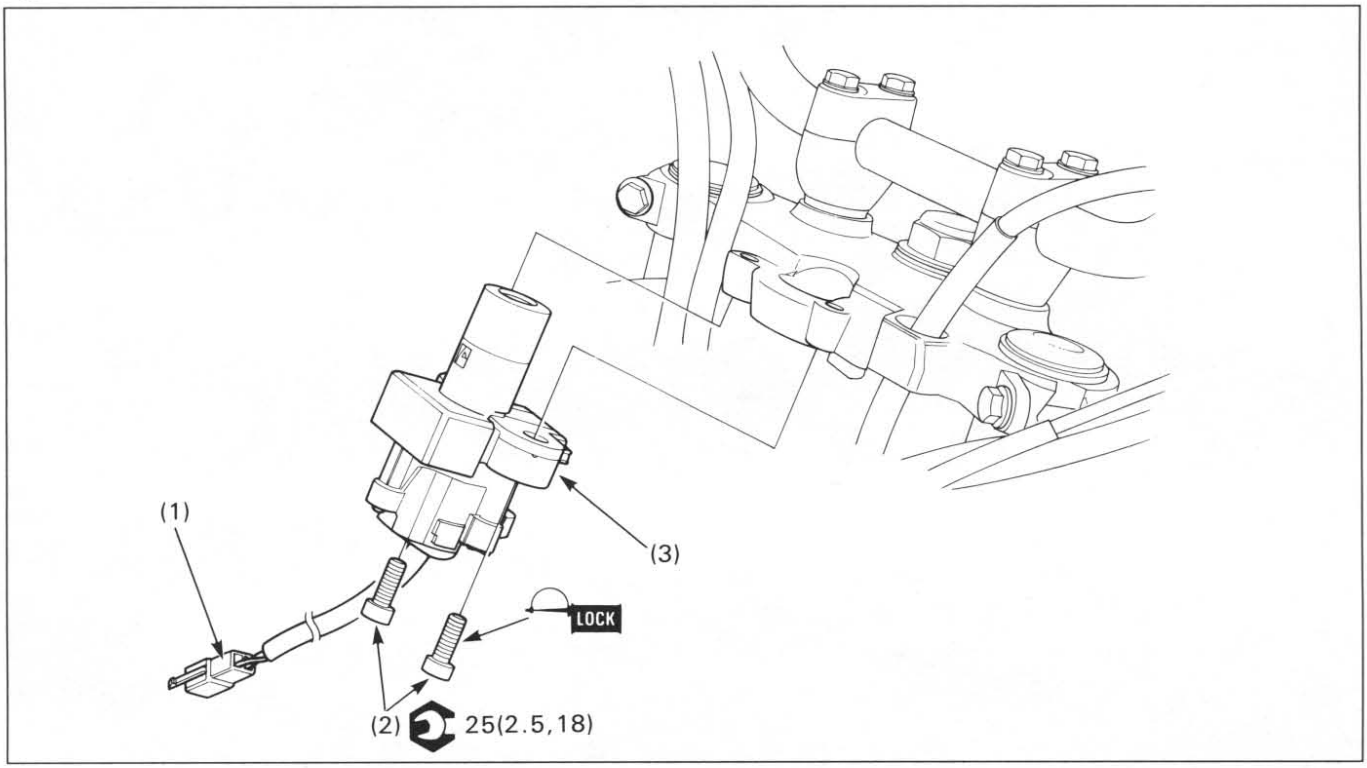
Ignition Switch Removal/Installation



Requisite Service

- Headlight removal/installation (page 16-3).
- Meter removal/installation (page 16-5)

Procedure		Q'ty	Remarks
	Removal Order		Installation is in the reverse order of removal.
(1)	Ignition switch connector	1	
(2)	Ignition switch mounting bolt	2	• Remvoe the bolts using the torx bit T40 (07703-0010100). • At installation, apply a locking agent to the threads.
(3)	Ignition switch	1	

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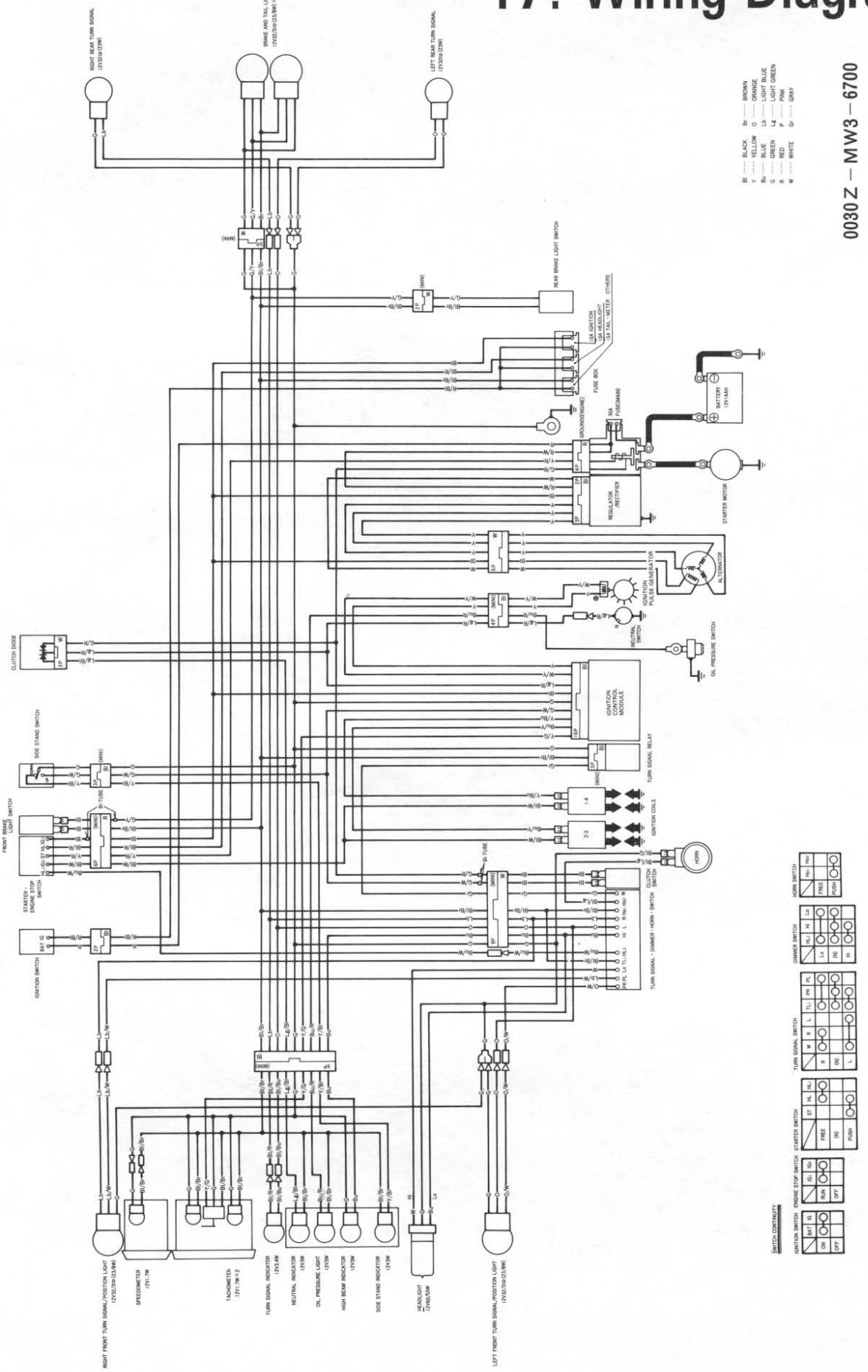
17. Wiring Diagram

0030Z – MW3 – 6700



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18. Troubleshooting

Engine Does Not Start Or Is Hard To Start

		Possible Cause
1. Check fuel flow to carburetor	Not Reaching Carburetor	• Clogged fuel tube or fuel strainer • Sticking float valve • Clogged fuel tank breather • Disconnected or faulty auto fuel valve vacuum tube
Reaching Carburetor		
2. Perform a spark test	Weak Or No Spark	• Faulty spark plugs • Fouled spark plugs • Faulty ignition control module • Broken or shorted spark plug wires • Broken or shorted ingition coil • Faulty ignition switch • Faulty ignition pulse generator • Faulty engine stop switch • Loose or disconnected ignition system wires
Good Spark		
3. Test cylinder Compression	Low Compression	• Valve stuck open • Worn cylinder and piston rings • Damaged cylinder head gasket • Seized valve • Improper valve timing
Compression Normal		
4. Start by following normal procedure	Engine Starts But Stops	• Improper choke operation • Carburetor incorrectly adjusted • Intake pipe leaking • Improper ignition timing (Faulty ignition control module or ignition pulse generator) • Fuel contaminated
Engine Does Not Fire		
5. Remove and inspect spark plug	Wet Plug	• Carburetor flooded • Choke closed • Throttle valve open • Air cleaner dirty

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Engine Lacks Power

		Possible Cause
1. Raise wheels off ground and spin by hand Wheel Spins Freely	Wheels Do Not Spin Freely	• Brake dragging • Worn or damaged wheel bearings • Wheel bearings need lubrication • Drive chain too tight
2. Check tire pressure Pressure Normal	Pressure Low	• Faulty tire valve
3. Accelerate rapidly from low to second Engine Speed Lowered When Clutch is Released	Engine Speed Not Changed When Clutch is Released	• Clutch slipping • Worn clutch discs/plates • Warped clutch discs/plates • Weak clutch spring
4. Accelerate lightly Engine Speed Increases	Engine Speed Does Not Increase	• Carburetor choke closed • Clogged air cleaner • Restricted fuel flow • Clogged muffler • Pinched fuel tank breather
5. Check ignition timing Correct	Incorrect	• Faulty ignition control module • Faulty ignition pulse generator
6. Check hydraulic tappet conditions Correct	Incorrect	• Clogged tappet oil holes • Worn valve seat • Damaged tappaet
7. Test cylinder compression Normal	Too Low	• Valve stuck open • Worn cylinder and piston rings • Leaking head gasket • Improper vlave timing
8. Check carburetor for clogging Not Clogged	Clogged	• Caburetor not serviced frequently enough
9. Remove spark plug Not Fouled or Discolored	Fouled or Discolored	• Plugs not serviced frequently enough • Spark plugs are incorrect heat range
10. Check oil level and condition Correct	Incorrect	• Oil level too high • Oil level too low • Contaminated oil
11. Remove cylinder head cover and inspect lubrication Valve Train Lubricated Properly	Valve Train Not Lubricated Properly	• Clogged oil passage • Clogged oil control orifice

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		Possible Cause
12. Check for engine overheating	Overheating	• Excessive carbon build-up in combustion chamber • Use of poor quality fuel • Clutch slipping • Lean fuel mixture • Wrong type of fuel
Not Overheating		
13. Accelerate or run at high speed	Engine Knocks	• Worn piston and cylinder • Wrong type of fuel • Excessive carbon build-up in combustion chamber • Ignition timing too advanced (Faulty ignition control module) • Lean fuel mixture
Engine Does Not Knock		

Poor Performance At Low And Idle Speeds

		Possible Cause
1. Check ignition timing and hydraulic tappet condition	Incorrect	• Tappet oil holes clogged • Tappet damaged • Improper ignition timing (Faulty ignition control module)
Correct		
2. Check carburetor pilot screw adjustment	Incorrect	• See Fuel System Section
Correct		
3. Check for leaking intake pipe	Leaking	• Loose insulator clamps • Damaged insulator
No Leak		
4. Perform spark test	Weak or Intermittent Spark	• Faulty, carbon or wet fouled spark plug • Faulty ignition control module • Faulty ignition coil • Broken or shorted spark plug wires • Faulty engine stop switch • Faulty ignition pulse generator • Fautly ignition switch • Loose or disconnected ignition system wires
Good Spark		

Poor Performance At High Speed

		Possible Cause
1. Check ignition timing and hydraulic tappet conditon	Incorrect	• Damaged hydraulic tappet • Faulty ignition control module • Faulty ignition pulse generator
Correct		
2. Disconnect fuel tube at carburetor	Fuel Flow Restricted	• Clogged fuel line • Clogged fuel tank breather • Clogged fuel strainer
Fuel Flows Freely		

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		Possible Cause
3. Remove carburetor and check for clogged jets	Clogged	• Clean
Not Clogged		
4. Check valve timing	Incorrect	• Cam sprocket not installed properly
Correct		
5. Check valve spring	week	• Faulty spring
Not Weakened		

Poor Handling → Check tire pressure

	Possible Cause
1. If steering is heavy	• Steering stem adjustment nut too tight • Damaged steering head bearings
2. If either wheel is wobbling	• Excessive wheel bearing play • Bent rim • Improperly installed wheel hub • Swingarm pivot bearing excessively worn • Bent frame
3. If the motorcycle pulls to one side	• Faulty shock absorber • Front and rear wheels not aligned • Bent fork • Bent swingarm • Bent front axle

Hydraulic Tappet

Noisy Tappet

		Possible Cause
1. Check for low oil level Ride for five minutes with the engine speed over 3,000 rpm Check oil level and condition	Incorrect	• Contaminated oil • Contaminated oil filter
Correct		
2. Check oil pressure	Too Low	• Clogged oil passage • Clogged oil control orifice • Oil level too low
Not Clogged		
3. Remove cylinder head cover and check lubrication	Not Lubricated Properly	• Clogged oil pipes • Falty O-ring
Correct		
4. Remove hydraulic tappet and check	Incorrect	• Plunger sticking • Faulty tappet • Faulty one way valve
Correct		

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Engine Lacks Power

		Possible Cause
1. Turn the engine for a few seconds with the starter	Engine Starts →	• Bubbles in engine oil when revved up
Engine Does Not Start ↓		
2. Check oil pressure	Too Low →	• Oil level too low • Clogged oil passage • Contaminated oil • Contaminated oil filter
Correct ↓		
3. Remove tappet and check	Incorrect →	• Faulty tappet (Replace)

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19. Index

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HONDA

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